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Present-Day Gardening

EDITED BY
R. HOOPER PEARSON
MANAGING EDITOR
OF THE *GARDENERS'*
CHRONICLE.

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Present-Day Gardening

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PLATE I (*Frontispiece*)

MRS. COLLIER

DR. HARDY

Tulips

By Rev. Joseph Jacob

*With Eight Coloured
Plates*



*London: J. C. & E. C. Jack
67 Long Acre, w.c. & Edinburgh*

PREFACE

My task is done. After the lapse of ever so many years, another Tulip book¹ will soon seek the suffrages of the garden world.

Here and there the innate fire of an enthusiast's heart has broken through the hard crust of conventional writing, for I am intensely fond of the flower. Its barbaric magnificence, no less than its superb refinement of colour and marking, appeals to me.

I have lingered longer than perhaps I ought upon its historical past, but to me the intellectual and the cultural sides of its life are inseparable.

I have tried to tell in a readable manner what I know of its requirements as a denizen of our Western gardens; but alas! no one knows his limitations better than the writer himself.

Still, with all its faults of commission and omission, I trust there will be a sufficient residue of fact and suggestion remaining to make this effort of love of practical utility to those who think highly of this glorious Eastern flower and wish to grow it.

JOSEPH JACOB.

September, 1912.

¹ This book on the Tulip being the first published in English, Mr. Jacob has had to contend with the usual difficulties of the pioneer. He has surmounted them, and his efforts have been well seconded by Mr. Waltham, to whom we owe the beautiful photographs.—EDITOR.

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TULIPS

CHAPTER I

INTRODUCTION

IN the present volume my first object is to provide a practical manual of tulip culture, suitable to the needs and inclinations of present-day gardeners.

Hence, although there is a great deal of historical, literary, and scientific interest centred round the tulip, I am compelled by the limitations of the series in which this book is to find a place, to do little more than point out their existence. One exception I must make. The summer madness of the Dutch in the first half of the sixteenth century is such an unique episode in the history of a flower, that I feel there must be many who will desire to know some details about it. To this subject I propose to devote the whole of a rather long chapter. Another chapter must perforce be taken up with a chronological table of the chief events in the history of the flower since it first became known in Western Europe in 1554; while, in a third and shorter one, I will state in as concise a manner as possible some at least of those absorbing problems which are, as it were, the advanced arithmetic of the tulip student.

As the writing time of this brochure coincides with a somewhat unexpected and phenomenal rise in the prices of both Cottage and Darwin varieties, but especially of the latter, I make no apology for devoting a larger space to their

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consideration than I might otherwise have thought desirable. That they will prove to be the twentieth century tulips there is not a shadow of doubt. Twenty-five years ago they were practically non-existent; to-day their importance is greater than that of any other type, and neither the brilliance of the mid-Asian importations nor the exquisite refinement of the florist varieties can vie with them in popular estimation.

My plan for the second or practical part of the volume is as follows. First, to define certain terms which are or have been current coin among tulip connoisseurs; then to take each type of flower in turn, describe it, suggest the purposes for which it will be found to be most useful, and finally to give a list of the better varieties which are grouped under that particular head. Then, secondly, I shall describe the different ways in which tulips may be grown, and give directions about their cultivation. Thirdly, propagation and ailments will be discussed; and lastly, there will be lists of the best varieties suitable for the different purposes of a house and garden.

CHAPTER II

CHRONOLOGY AND BIBLIOGRAPHY

In this chapter I have set out some of the principal incidents in the history of tulips commencing with the year 1554.

- Year.
1554. With the possible exceptions of such species as *T. sylvestris* and *T. celsiana*, tulips were unknown in Mid and Western Europe up to this date.
 Augerius Gislénus Busbequius, ambassador of the Emperor Ferdinand, noticed some tulips in a garden between Adrianople and Constantinople.
1559. The Swiss botanist Gesner saw some tulips in flower in Councillor John Henry Herwart's garden at Augsburg.

CHRONOLOGY & BIBLIOGRAPHY 3

Year.

1561. The first picture of a tulip of which we have any record was published in Gesner's edition of *The History of Plants* by Valerius Cordus.
1562. A merchant at Antwerp receives "a cargo" of bulbs from Constantinople (Martyn's edition of *Miller's Dictionary*).
1571. Introduction of tulips into Holland (*History of Plants* by C. Clusius, 1601).
1582. A few years before this date tulips were introduced into England (Hakluyt's *Voyages*).
1597. Publication of Gerard's *Herbal*. He says his "loving friend Master James Garret" has been twenty years experimenting to find out the number of varieties (of tulips); "all which to describe particularlie, were to roule Sisiphus stone or number the sandes."
1611. Tulips first flowered in France in the garden of Fabri de Peires, "conseiller de Parlement de Provence."
1614. Publication of the *Hortus Floridus* by Crispinus Passeus the younger, a celebrated engraver. In the full edition there are many figures of striped (that is "broken") tulips.
These must be some of the first illustrations of the flowers that eventually came to be called "Florist tulips."
1629. Parkinson in his *Paradisus* enumerates about one hundred and forty varieties, thereby showing that tulip culture had gained a firm foothold in England.
- 1634-37. Period of the Tulip mania in Holland.
1637. The first edition of "*l'Samenspraecken*" (Anglicè, Conversations) published at Haarlem by Adrian Roman. The book purports to give a dialogue between two weavers, Waermondt and Gaergoedt. It is from this publication that we have got the greater part of our knowledge of how tulip sales and speculations were carried on in the days of the mania. The author is unknown.
1643. Second edition of *l'Samenspraecken*, with numerous additions.
1654. Publication of *Le Floriste François* by de la Chesnée Monstereul. This is an exhaustive work in French dealing

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Year.

entirely with the tulip from a horticultural standpoint. It is, I believe, the first horticultural monograph ever published. The curious frontispiece of this very rare work is reproduced on page 5. The author's estimation of the flower may be gathered from the following extract from the beginning of his first chapter:—

"Comme l'on voit qu'entre les Animaux l'Homme a la domination ; entre les Astres le Soleil tient le premier rang ; et entre les pierres precieuses le Diamant est le plus estimable ; ainsi il est certain qu'entre les fleurs la Tulipe emporte le prix, comme le sujet où la nature influë toutes ses beautes et l'instrument sur lequel elle fait voir aux yeux du monde les plus beaux ornemens dont son divin Auteur l'a enrichie."

1665. First double tulip noted.

1665. The celebrated English florist John Rea published his *Flora seu De Florum Cultura*. One hundred and eighty-four varieties of tulips are noted in his lists.

1690. Parrot tulips first noted.

1710. *The Tatler* (No. 218, August 31, 1710) ridicules a supposed tulip maniac of the day. It makes the owner of a tulip bed, which was two yards wide and twenty in length, say to a visitor, that he valued that bed of flowers "more than he would the best two hundred acres of land in England."

1734. A third edition of *t'Zamenspraecken* published as a warning against a hyacinth mania, of which there were symptoms.

1760. *Traité des Tulipes* first published at Avignon by le Père d'Ardene. (2nd edition, 1765.) This and *Le Floriste François* are the two classical works of olden time. Much valuable information can also be gained from the English translations of Van Oosten (*Dutch Gardener*, 1st edition, 1703) and Van Kampen (*Dutch Florist*, 1st edition, 1763). The large space devoted to tulips in both these works is very eloquent, but in the latter it is to be noted that the tulip has to some extent given place to the hyacinth.



*C'est L'Amour seul qui me Cultive,
 Et Phoebus enrichit mes fleurs
 D'un nombre infini de couleurs
 L'une brune l'autre plus vive
 Prenant le pur des Elements
 Pour composer mes ornements*

Duquesnoy

ARJOVEN Chez Louis du Mesnil dans la Cour du Palais 1650

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Year.

1764. First edition of *L'École du jardinier fleuriste*. The frontispiece of a bed of tulips with a temporary covering over it is very interesting. It is not reproduced in later editions.
1776. I have an original cutting from some East Country paper, dated Ipswich, 15th May 1776, in which a "Tulip Show" is advertised for May the 21st. I give the whole *in extenso* for the interesting sidelight it throws on these times:—"The Tulip Shew will be at John Rycrafts' in St. Clements' Parish on Monday the 21st instant; when each Person who produces the two best Flowers (if his own Property three months) shall be intituled to two Pieces of Plate; and the third to 5 Shillings: But no person will be admitted to shew any Flower there unless he is a Member of the Society. The Flowers to be at John Rycrafts by Twelve o'clock; Dinner at One; where the Company of Florists will be esteemed a Favour.

PETER BURROUGHS, *President*.

WILLIAM TAYER }
JOHN THORNDIKE } *Stewards."*

Please remark the dinner. I fancy the custom has been always kept up, for when I attended, two years ago, the Northern Tulip Show at Middleton, near Manchester, the dinner at the old inn just across the road was one of those experiences in life which I shall never forget. I believe, from the present year onwards, this Northern show is to be discontinued. May I put in a plea for this good old custom to be observed in its Southern home?

1792. A catalogue of James Maddock of Walworth issued in this year contains 665 varieties, priced from 6d. to £6, 6s. per bulb. This is now in the possession of Mr. Harman Payne of Catford.
1794. James Hudson of Newcastle published by subscription his *Florist's Companion*. It is valuable because it gives "the properties of a fine variegated late tulip." These very nearly coincide with those which are esteemed at the present day.

CHRONOLOGY & BIBLIOGRAPHY 7

Year.

1822. New species of tulips found near Florence.
- 1827-32. Issue of Robert Sweet's *Florist Guide*. The arrangement of plates and letterpress is like that of the *Botanical Magazine*. Out of 200 florist flowers illustrated, 60 are of tulips; amongst these is the celebrated Polyphemus.
1832. On July 26, William Clark of Croydon died. He was one of the best known of all the great tulip men of the last century. He raised many good varieties, including Polyphemus and Miss Fanny Kemble, "the loveliest of all tulips."
1832. In the autumn of this year Mr. Davy, aged seventy-five, of Chelsea, paid the executors of Mr. Clark one hundred sovereigns for the stock of Miss Fanny Kemble.
1833. Thomas Hogg of Paddington published his supplement to his *Practical Treatise on the Culture of Florists' Flowers* (1st edition, 1820). It contains 208 pages, of which more than half relate to tulips. It is full of the most useful and interesting information about the tulips of this period.
- 1840-55. Period of the tulip war between the Northern and Southern fanciers. To quote from the *Amateur Florist's Guide*, published c. 1850 by John Slater, florist, Cheetham Hill, Manchester, a great authority and writer, "The Southern florists call a tulip fine when it possesses a good cup and a good clear bottom, even if the feathering and flaming be deficient; whilst the Northern florists consider, in addition to a good cup and bottom, that the tulip ought to be regularly feathered and flamed."
- 1840-60. This was the era of local tulip shows. For detailed information the reader must go to such periodicals as *The Midland Florist*, *Gossip of the Garden*, and Harrison's *Floricultural Cabinet*.
1846. *Tulipa Didieri* first found in Savoy. This is one of the so-called "neotulips," about whose origin so much uncertainty prevails. Others are *T. mauriana* (1858) and *T. Marjolettii* (1894).
1849. The Royal National Tulip Society was founded in this year.
1872. *Tulipa Greigii* found in Turkestan.

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Year.

1874. Revision of Tulipeæ by J. G. Baker, *Journal Linn. Soc.* of London, Vol. XIV (1874). Additions and further revision, *Gardeners' Chronicle*, New Series, Vol. XIX, 1883, p. 628 ff.
- 1883-84. Neotulips occupy the attention of several European botanists, and, amongst others, E. Levier writes upon them in scientific periodicals. Consult the bibliography in Solms-Laubach's *Weizen und Tulpe*.
1893. A remarkably early season. The Southern Show was held on May 8th.
1889. Darwin tulips introduced into commerce by E. H. Krelage and Son of Haarlem.
1896. Hartland of Cork issued his *Original Little Book of Irish-grown Tulips*. This is a catalogue of late border single self-coloured tulips, and "is the first of the sort ever published." It also contains reprints of valuable articles by John Slater of Manchester and J. Forbes of Stanley, Yorkshire. To the late Peter Barr of London and W. B. Hartland of Cork we owe the great majority of our "Cottage tulips."
1897. *The English Tulip and its History* was issued by Barr & Sons.¹ This is the modern text-book of the florist cultivator.
1899. *Weizen und Tulpe*, by Von H. Grafen zu Solms-Laubach. An exhaustive treatise on the origin of species and garden tulips in Mid and Western Europe. It also contains a good account of the Tulip mania, and has a valuable bibliography.
- 1902-04. Many fine new species from Turkestan, Bokhara, Persia, and other countries were introduced by C. G. van Tubergen of Haarlem,—*T. Fosteriana*, *T. ingens*, *T. Tubergeniana*, *T. præstans* (Tubergen) amongst others.
1910. *Das Leben der Tulpe*, by Edmund Döring, Sondershausen. In this work the vegetative life-history of a tulip plant is described in detail. Such questions as "droppers" (see p. 98), and secondary bulbs are fully treated.

¹ It contains the lectures delivered at the great Tulip Conference of the Royal National Tulip Society held at the Royal Botanic Society's Gardens on May 12, 1897.

CHAPTER III

THE TULIP MANIA

It is not difficult to imagine the excitement that the advent of such a flower as the tulip must have caused when it was first introduced from the East.

Naturally every garden-lover would wish to possess some varieties of this brilliant flower, and it seems the most usual thing in the world to read that the wealthy citizens of Holland frequently sent to Constantinople for fresh supplies, and that when the celebrated botanist Carolus Clusius settled down at Leiden as Professor of Botany in 1593, he was soon afterwards able to get extraordinary prices for his bulbs, thereby incurring no little resentment among his fellow-townsmen.

The wish to possess some of these gorgeous novelties was by no means confined to Holland. Rich men in Germany, Flanders, and France were just as anxious to have them as the Dutch themselves, and so prices were maintained. A contemporary writer, one Nicolas Wassenaer, says that in the year 1623 a variety called *Semper Augustus*, which had red markings on a white ground, was sold for "thousands of florins," and that two years later—that is in 1625—three thousand florins were offered for two bulbs, but that the owner refused to part with them. Further evidence of the wide popularity of the flower is furnished by the *Hortus Floridus*, one of the earliest and best works of the celebrated Utrecht engraver Crispin le jeune (*Crispinus Passæus*). It was published in 1614, and contains many illustrations of the tulips that were at that time most prized. Before 1617 there were no fewer than six editions published, including one in French and one in English. In addition to the impetus which arose from the legitimate needs and rivalry of the florists, there seems to have grown up in Paris a fashion

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for ladies of the higher classes to wear flowers, especially tulips, in their low-cut dresses, so that the competition of the wealthy beaux to obtain the rarest and most novel to present to their lady friends drove prices still higher. The continual demand for tulips both at home and abroad, and in consequence the yearly increase in the values of many of the best sorts, and the desire of every trader to possess some of them and to get hold of the finest Breeders for the purpose of raising new seedlings, seem to have given rise to the idea that by means of this trade Holland might be turned into a veritable Tom Tiddler's Ground, whence all Western Europe would come to buy and to spend. However this may be, it is a fact that in the year 1634 there began one of the most extraordinary speculative manias which history records, and which can only be compared to the Mississippi Scheme (1719-1720) of France, the South Sea Bubble (c. 1717), and the Railway Mania of England. At first the trade was undoubtedly legitimate, but as time went on it developed into a pure speculation, about which it may be said, if one thing is more certain than another, that the last thing that entered into a purchaser's head was the wish to possess the bulbs he had theoretically bought. All classes of the community, even sweeps and servant girls, joined in the gamble. Much of the ordinary trade of the country was given up, and the usual occupations of the citizens were neglected—all, so that more time and money could be given up to the new way of getting rich.

Thanks to an anonymous work, the "*t'Samenspraecken tusschen Waermondt ende Gaergoedt*" (Conversations between Waermondt and Gaergoedt) which was published at Haarlem in 1637, we know a good deal about the way this gambling business was transacted; but I am told that if this book had been written in a less technical and more polished style, we should have known still more, and several obscure points

in the procedure of buying and selling would have been cleared up. Thanks also to Abr. Munting's *Waare Oeffening-der Planten* &c. (Amsterdam, 1672), and latterly to the researches of Sautyn-Kluyt (1866), and Solms-Laubach (*Weissen und Tulpe*, 1899), we are able to glean much information as to what happened.

Collegiums or Clubs were instituted in a large number of towns, such as Haarlem, Delft, Enkhuizen, Alkmaar, Leiden, Utrecht, and Rotterdam. These usually met at different inns, and there were definite laws and regulations as to how the business should be carried on. There were two methods of sale, one "met de borden," which was a particular way of buying and selling by means of two small slates or tablets, with an arbitrator to settle the fair price, which had then to be accepted or refused according to the inclination of the parties; the other was "in het ootje," which was a form of auction in which the bids were written in a figure shaped like the illustration. The thousands being written in the top semicircle, the hundreds in the bottom one, and the unit under the bottom of the straight line. In the circle was the amount to be paid the inn for the wherewithal to supply the food and drinks that under both conditions of sale were necessary adjuncts of the day's transactions. It would be tedious to enter into more details, but one feature is so characteristic and peculiar that it must not be omitted, as it gives a vivid idea of how all idea of reality had been lost. Long before the end came in the early part of 1637, a custom had grown up of selling the bulbs by weight without any regard to the size of the bulbs. For this purpose an *azen* (a small weight less than a grain) was selected, and we have documentary evidence of the prices paid per *azen* in the case of many of the best known varieties—*e.g.* Admiral van der Eyck, 440 *azen*,



FIG. 2.

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brought 1620, and Anvers, 52 azen, 510 florins, on February 5, 1637—a few days before the crash took place. It is from Munting that we glean most information about the last days of the mania. It is not very clear what was the immediate cause of the sudden fall. It has been suggested that connoisseurs had become tired of their hobby, and were placing numbers of actual bulbs on the market. Very likely this was the case, but surely by this time a suspicion must have crossed the minds of the more far-seeing of the speculators that such an artificial trade could not go on for ever ; at any rate they now began to make stipulations in case of certain eventualities. Confidence was lost, and the inflated values dropped like a stone. Delegates were appointed from various towns to meet at Amsterdam to consult as to the best course to be pursued. The law courts became crowded. Petitions were addressed to the Governors of the States of Holland and West Friesland. At last, partly owing to a decree of the courts (April 1637) authorising the sellers to sell all tulips which the buyer after due notice refused to accept, and making him responsible for any difference of value ; and partly owing to the reporting of a Commission on May 22, 1638, which had been appointed to endeavour to bring about an agreement between the parties which should be acceptable and binding, the trade once more resumed its usual course and the famous Tulip mania came to an end.

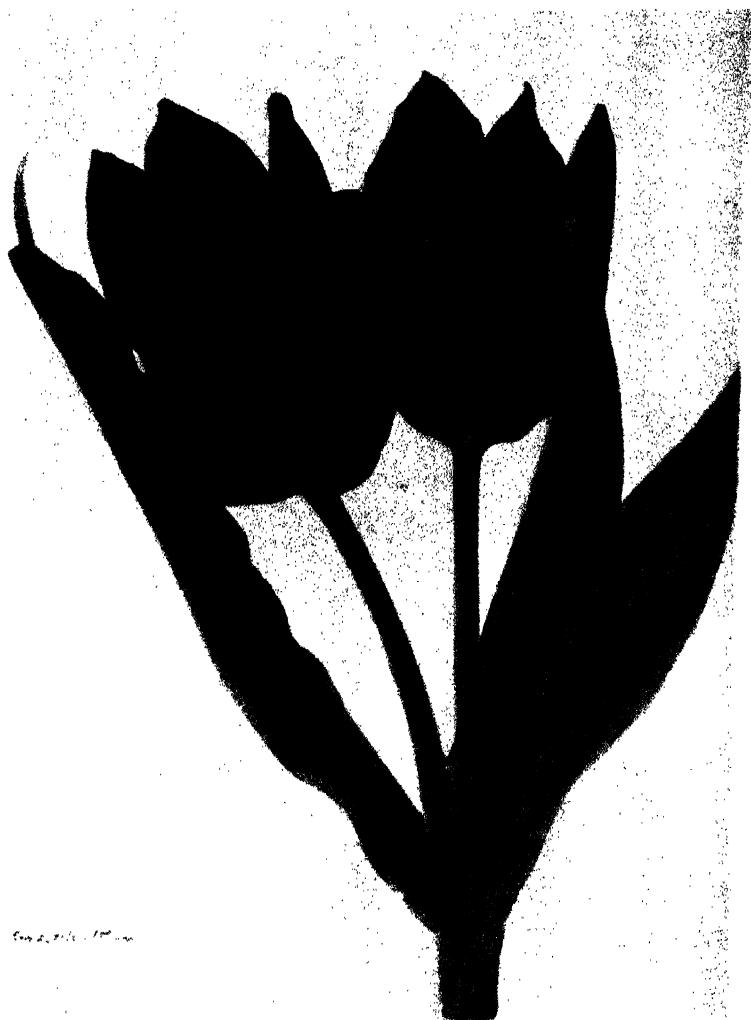
CHAPTER IV

PROBLEMS

I HOLD that there is an ascending scale in the enjoyment, and may I not say the intellectual profit, that can be got out of a flower. At the lowest point there is the delight of the

PLATE II

T. PRÆSTANS (*Tubergen*)



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eye which is provided by the "ready-made" bloom; then there is this and also that added something which comes when we *ourselves* have done our little best to forward its development; but there is a higher plane still when, to the delight and the satisfaction of accomplishment, there is the unknown beyond to lure us on in a quest full of difficulty and interest.

In few flowers is this potentiality greater than in the tulip.

For the first problem, there is that black darkness before 1554. What had been happening in Turkey and the East before this? It is almost certain the tulip must have been cultivated and possibly "improved." But who knows?

Then how to account for the sudden appearance of tulips (the so-called neotulips) in Italy and Savoy in quite recent times, and in places already thoroughly well known to botanists and searched by them? How came *Tulipa Didieri* or *T. mauriana* to be growing in the neighbourhood of St. Jean de Maurienne, or *T. strangulata* near Bologna, or *T. maleolens* near Florence?

Again, what is the origin of *T. Gesneriana spathulata*? I fancy only experiments in crossing can unfold the mystery, but what are we to cross?

Excepting Species, almost every tulip at some time or another in its life "breaks"—that is, instead of being a "self," it becomes striped. A "florist" calls it rectified. To him the break is of the greatest importance. A good break means a flower fit for the show-table, a bad one a variety to be thrown to the rubbish heap. Yet what does this breaking mean? and is there any device by which it can be controlled?

T. sylvestris and *T. Clusiana* are common enough now in parts of Southern and Mid Europe. Was this always so? Did not they come to us from the East? If so, by what route did they travel?

Once more, what morphologically are those aggravating

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things known as "droppers"? (See p. 98.) Why should young bulbs do this? Has the origin of those curious washy-looking, pale-claret coloured flowers (thief tulips) that so unexpectedly appear amongst our parrot tulips and others, been satisfactorily explained?

Why should all our parrot tulips be bizzarres? Can any tulip become a parrot?

Lastly about the mania: we know a great deal, but we do not know quite all. The broad outlines are there, but some shading has to be filled in. The details of the auction sale, the constitution (if any) of the "collegiums," and the precise nature of the tulips offered for sale all need further elucidation. Speaking for myself, I am by no means certain that it was the late flowerers that must be associated with the sales of 1635.

Such are some of the problems connected with tulips over and above those which the genus possesses in common with all others with respect to cultivation. I think it will be said that our flower—the "King of Flowers" of Slater and the "Queen of Flowers" of Hogg—provides for its devotees its fair share of difficult questions.

CHAPTER V

VOCABULARY

THE necessity for technical terms seems to have arisen in very early times. In Parkinson (1629) we have¹ "Fooles coates" used to denote yellow and red-striped flowers; and as they inclined to white or more red we find in his descriptions "white Foolescoates" and "Crimson Fooles Coates." In *Le Floriste François* (1654) we get a whole series—Morillon,

¹ Cf. *The Tatler*, August 31, 1710. The term Fool's coat is used in the article.

Morillony, Agate, Agatine, Marquetine, Marquetrine, and Jaspée, terms which described different forms of striping, or intensity and brightness of colour, and which seem to have been in use for a considerable time (*Dutch Gardener*, 1702), until such terms as bizarre, violette, baguette primo, baguette rigaut, bybloemen, and others, gradually superseded them (*Dutch Florist*, 1763). Some of these are still in general use, but for the most part they are now obsolete. Garden tulips were originally divided into three divisions, namely, præcoces, dubiæ, and serotinæ, or early, middle, and late flowering varieties. The above technical terms or similar ones, seem to have been applied indiscriminately to each section (*Rea's Flora seu Florum Cultura*, 1665).

In these days we have dropped the medios or middle flowering division out of our lists, and the two great divisions of tulips are called "Early Flowering" and "Late Flowering." Of the latter type we have numerous subdivisions, *e.g.* Cottage, Florist, Darwin, Parrot, &c. &c. We use, too, a certain number of (comparatively speaking) new phrases and terms in our garden talk and in our bulb lists. It is these subdivisions and terms together, with a few of the more important obsolete ones, that I propose to explain in the following vocabulary:—

Baguette.—A French term in use to-day to denote tall, strong-growing varieties—*e.g.* Darwins are "baguettes."

Base.—The bottom of the inside of a flower. It varies very much in its colouring. In a true English florist tulip it must be either pure white or pure yellow. This is no hard and fast rule about other kinds. In *T. mauriana*, it is a clear golden-yellow; in the Darwin tulip, Professor Rauwenhof, it is a sort of white star tinged with blue; and in *T. linifolia* it is almost black.

Beam.—The broad band or ray of colour in the centre of each petal of a striped florist tulip.

Bizarre.—A flower which has a yellow base. It may be either a

self (*i.e.* a breeder or mother tulip) or striped (that is broken or rectified). The term is usually only employed for garden and florist varieties.

Breeder.—Most garden tulips begin life as self-coloured flowers. After a time the colouring matter gets broken up into stripes and blotches. Before this change takes place a flower is known as a Breeder or Mother tulip. Darwin tulips are Breeders.

Broken.—When the colouring matter of a self has become split up into stripes and blotches, that particular flower is called "broken" or "rectified." There is no stated time for this change to take place even in the same variety, nor is it at all necessary that the particular form the colour takes shall be always the same—*e.g.* we have Sir Joseph Paxton as a breeder, a feathered bizarre, and a flamed bizarre. We designate these variations thus: Sir Joseph Paxton feathered, Sir Joseph Paxton flamed, and Sir Joseph Paxton breeder.

Byblæmen.—(Next flowers) originally so called as being next in estimation to the baguettes (*Dutch Florist*, 1763). It is now applied to flowers which have a white base and some shade of purple markings. The celebrated Tulip "Miss Fanny Kemble" was a byblæmen.

Cottage or May-flowering.—Varieties which have been found for the most part in the old cottage gardens of the British Isles. They were originally in all probability the casts-off of the early and mid Victorian florists—Breeders, that is, that were never likely to "break" well, or rectified flowers that did not come up to the recognised standard. We owe most of them to the labours of the late William Baylor Hartland of Cork and Peter Barr of London. Typical examples are Striped Beauty, Leghorn Bonnet, and John Ruskin.

Darwin.—A vigorous race of selfs distinguished by their strong and tall stems (hence baguettes), their non-yellow bases, and their shapely flowers. They were discovered in an old Continental garden, and were first introduced into commerce by the celebrated firm of E. H. Krelage & Son of Haarlem in 1889. It is a misnomer to class such varieties as Jaune d'Oeuf, Clio, Toison d'Or, &c., as Darwins.

Dragon.—An old name for Parrot Tulips. They were originally called "Monstre" because "d'un forme extraordinaire" (*Le Floriste François*).

Ducs.—Duc van Thols, a small class of very early flowerers, descended from *T. suaveolens*, which is a small, red flower with a yellow edge. Parkinson writes of "Dukes."

Dutch.—The early flowering section, such as Prince of Austria and Cottage Maid, are often spoken of as Dutch, because until the last few years they were grown for sale almost exclusively in Holland.

English.—The strict florist tulips with pure white and pure yellow bases are called English because they have all been raised in England. Some of the best known raisers of the past are Holmes, Clark, Wood, Franklin, Goldham, Groom, and Slater. The best known modern names are Hardy, Hall, Barlow, Bentley, and Needham.

Feathered.—When a tulip becomes broken or rectified the colouring takes on one of two variations—either it is confined to the edges of the petals or else there is in addition a broad beam of colour running up the middle of each petal. When the colour is confined to the edges only, a flower is said to be feathered.

Fire.—A fungus disease, which is generally caused by hail bruising the tender skin of the leaves or by the sun acting as a burning-glass on drops of dew or on minute particles of dew. The first signs are the little whitish spots, which soon spread, and part of, or the whole leaf becomes dried up and papery; beyond weakening the bulb, this does not do very much harm unless the attack is very bad.

Flamed.—When the colour runs up the middle of each petal and branches out toward the edges, the tulip is said to be flamed. The feathering at the edges is always present as well.

Flemish (Fr. *Flamande*).—A sturdy race of rectified tulips which are not so finely marked as the English, and which have not the same pure bases. There are no bizzarres amongst them. These are the modern florist tulips of France.

Florist.—A refined race of broken tulips distinguished by pure bases and correct markings. This is a definition from the English point of view.

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Foul.—A tulip is foul when the white ground (or yellow ground) is flushed with the colour of the markings. Frost at a certain stage of the bud is one of the causes of this defect. The word is used only in relation to florist tulips.

Italian (Florentine).—A generic name for all those species of tulips which have been found within the last quarter of a century or so in Central and Northern Italy. These are some of the Neotulips of Levier.

Lale.—The Turkish word for the tulip.

Late Flowering.—A term which includes all kinds of tulips except the early blooming varieties.

Marquetrine.—"This is a sort of Tulips that excels all others; some of these are of four, five and sometimes more colours, and are the most esteemed of any by the curious" (1703). Evidently "the end" of the tulipists of two centuries ago was to have a great number of shades of colour in their flowers. Historically interesting.

May-flowering.—Synonymous with "Cottage" tulips.

Mother.—A term originally used, probably in Germany, to denote "breeders."

Neotulips.—A collective name given to the new species of tulips that have been discovered within the last century in Italy and Savoy. Some of the best known are *T. mauriana*, *T. Billietiana*, and *T. Didieri*.

Parisienne.—A term found in French bulb lists, e.g. Vilmorin's. It denotes a small group of especially hardy, late tulips distinguished by their suitability for cutting. It is for this purpose more especially that they are cultivated in the neighbourhood of Paris.

Parrot.—Tulips with split and irregularly cut petals are called Parrots. They have been known since 1665. All in the catalogues have been bizzarres until Messrs. Barr & Sons included a variety called Sensation in their list for 1907. It was found in Holland as a sport in a bed of a bybloemen breeder called Reine d'Espagne.

Plated.—When the feathering on the edges of a petal is wide, and the fine lines of colour have all run together, the flower is said to be plated.

Quarters.—A tulip quarters when the petals of the fully open flower go so far apart that daylight can be seen between them at their bases.

Rembrandts.—A new race of rectified tulips derived from the Darwins. Semele and Victor Hugo are two of the best varieties of this type.

Roses.—Rectified or broken tulips with pure white bases and some shade of red markings on a white ground. The famous Semper Augustus of the mania period was a "rose."

Savoy tulips.—The collective name of the Species tulips found in Savoy.

Species.—Varieties which are of natural or wild origin. *T. Fosteriana*, *T. dasystemon*, and *T. sylvestris* are examples. It is used in contradistinction to garden forms such as Inglescombe Pink and Le Rêve.

Tulip.—Probably derived from the Turkish for muslin, "Dulbend." From this word Europeans have made *turban* and also *tulip*. Busbequius probably did not understand his interpreter, who may have explained the shape of the flower by referring to the usual head-dress of the Turks. Hence the name of the head-dress has been transferred to the tulip by Western Europeans.

Tulipes Pluriflores.—A race of branching garden hybrids which has been introduced within the last few years by Mons. G. Bony of Clermont-Ferrand, France (see *Gardeners' Chronicle*, May 15, 1909, fig. 137). Mons. S. Mottet is the best known variety. When this type becomes lower in price, the varieties will be extremely valuable for clumps and beds.

CHAPTER VI

DIVISIONS OF TULIPS

As I am writing entirely from a gardening standpoint, I have decided to omit all reference to botanical classification, and to adopt those main popular divisions or groups which are

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usually to be found in bulb catalogues. These are—1, Early Flowering Singles; 2, Early Flowering Doubles; 3, Cottage or May-Flowering; 4, Late Flowering Doubles; 5, Parrots; 6, Darwins; 7, Rembrandts; 8, Florist; and 9, Species.

In the following nine chapters, the different types are dealt with one by one. First, their general characteristics are described, and where necessary their history is touched upon; then, secondly, the purposes for which they are most suitable are pointed out; and lastly, a selection of varieties is given with brief descriptions. With the exception of the Parrots and the Rembrandts, there is an example of each group in the coloured illustrations incorporated in this volume. Thus Fred Moore and Prince of Austria (Plate V.) are representative of the Early Singles; Sir Harry (named by permission of Sir Harry Veitch and Messrs. M. van Waveren and Sons of Hillegom, the introducers), Solfatare (Plate VII.), Beauty of Bath and Carnation (Plate IV.), of the Cottage; Dr. Hardy and Mrs. Collier (*Frontispiece*), of the Florist; Euterpe and Frans Hals (Plate VIII.), Suzon and Mr. Farncombe Sanders (Plate III.), of the Darwins; Præstans (Tubergen) (Plate II.), of the Species; and Schoonoord (Plate VI.), of the Early and Late Flowering Doubles. I would like to have had an illustration of a "Parrot," but Mr. Waltham informed me that owing to the length of time necessary for the petals to remain without the least movement, it was impossible to get a good picture. Dr. Hardy gives one a rough idea of what a Rembrandt is like, but in this new class the markings are nothing like so refined and regular, and as a rule the flowers are of a longer shape. The natural species include every shape and size of bloom—some have one flower only on a stem, some, as *T. præstans* (Tubergen) and *T. dasystemon*, have invariably two or three; *T. Lownei* is small, while *T. Fosteriana* is large, and so on. The illustration, then, of *T. præstans* (Tubergen) must not be taken as characteristic of the whole

group—no one flower could be. It is simply an example of one of the best and most satisfactory to grow in British gardens.

In selecting the varieties in the following lists I have in every case tried to cover as wide a range of colour as possible, but I am quite aware that in certain cases my own preferences have so far crept in as to make me discard some that others would have included, and *vice versa*. I make no apology for this; as otherwise I should not know on what grounds to base my choice.

CHAPTER VII

EARLY SINGLE TULIPS

IN the early tulips there are two distinct types, the "Duc" and the ordinary. The former have smaller flowers than the others, and are earlier to bloom. In all probability they are derived from the natural species, *T. suaveolens* (*Bot. Mag.*, No. 839), which they much resemble. But the derivation is unknown, and many writers say they come from the *T. Gesneriana*; yet even if this is correct it does not take us any nearer, for there seems to be very little doubt that *Gesneriana* itself is a garden hybrid.

Until the introduction of the Darwins the early singles and doubles were the only kinds that one ever thought of growing in pots; and they are still the best tulips for this culture. They have always been one of the great stand-bys for early spring bedding, as they are to-day. With special treatment they can be got into bloom very early in the year, and the Duc van Thols by Christmas.

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LIST OF FIFTY OF THE BEST VARIETIES

D, in front of name, means dwarf; M, medium height; and T, tall.

Very Early

Duc van Thol, scarlet, small, very early, bright red.

Duc van Thol, white, small, very early, pure white.

Duc van Thol, yellow, small, very early, yellow.

Orange Shades

T *De Wet*, a new tall orange-coloured tulip.

T *Fred Moore*, deep orange, edged yellow.

M *Golden Lion of Hillegom*, orange, flushed yellow.

T *Prince of Austria*, a grand orange-red, one of the best of all tulips.

Pink and Rose Shades

T *Alice Roosevelt*, deep pink, edged blush, lovely colour.

D *Cottage Maid*, rosy and white.

T *Flamingo*, large, crinkled white, edged rose, very distinct.

M *Le Matelas*, deep rose, edged pale blush.

M *Pink Beauty*, long flower, vivid rose-pink with white flame.

M *Queen of the Netherlands*, pale rose-pink and white.

D *Rose luisante*, deep rich rose, edged white.

M *Van Goyen*, pale pink, edged white, lovely pale foliage.

Red and Cerise Shades

M *Artis*, deep scarlet, yellow base.

M *Brilliant Star*, new, an early variety, brilliant scarlet.

M *Couleur Cardinal*, rich deep crimson, with deeper flame on exterior; very late.

PLATE III

SUZON

MR. FARNCOMBE SANDERS



Thomas Willson

EARLY SINGLE TULIPS

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- T *Dusart*, dark red, splendid bedder, never fades.
- D *Fire Flame*, dark rose-red, late.
- T *Grace Darling*, red flushed orange, large.
- M *Jenny*, lovely rose colour, very sweet, excellent for pots.
- M *Maes*, large, deep red.
- M *Proserpine*, rose-crimson, early.
- T *Sir Thomas Lipton*, deep scarlet.
- T *Stanley*, bright rich rose.
- D *Vermilion Brilliant*, grand scarlet, good in pots.

Red and Yellow

- T *Duchess of Parma*, orange-red, bordered orange-yellow.
- T *Hector*, pale reddish-yellow, edged orange.
- T *Keizerskroon*, red, edged yellow.

Striped (Broken)

- D *Admiral Reinier*, cherry-red and white.
- D *Golden Bride of Haarlem*, scarlet, flamed yellow.
- D *Spaendonk*, lilac, rose, and cream.

Variegated Leaves

- D *Yellow Prince*, yellow leaves variegated gold.
- D *Silver Standard*, rose and white flowers; foliage striped with pale gold.

Various

- M *Cerise gris-de-lin*, bluey-cerise, edged cream.
- M *La Remarquable*, purple-red, edged flesh colour, very distinct.
- M *Proserpine*, cerise.

Violet Shades

- D *President Lincoln* (*Queen of Violets*), pale violet.
 M *Van der Neer*, rosy-purple, earlier than *Wouverman*.
 M *Wouverman*, rich reddish-purple.

White Shades

- T *Alba regalis*, white, with orange and carmine bits of colour here and there.
 T *Brunhilde*, white, flamed yellow, very distinct.
 M *Lady Boreel* (*White Joost van Vondel*), long, pure white, extra.
 T *Princess Hélène*, lovely pure rich white, good in pots.
 T *White Pottebakker*, pure white.

Yellow Shades

- M *Golden Queen*, very large, rich yellow.
 M *Mon Trésor*, deep yellow, most regular for bedding
 D *Primrose Queen* (*Herman Schlegel*), primrose-yellow.
 T *Prince de Ligny*, pointed flower, yellow.
 D *Yellow Prince*, yellow, often with some red tints.

CHAPTER VIII**EARLY DOUBLE TULIPS**

As long since as 1665, double tulips were known and figured in flower books. But they never seem to have been very popular, although several are figured in J. W. Weinmann's *Phytanthoiaiconographia* in 1745. In 1763 the English translation of the *Dutch Florist*, written by the celebrated firm of Nicholas van Kampen & Son of Haarlem appeared, and they

mention that only two varieties are listed in their catalogue, *La Couronne imperiale* and *Le Mariage de ma Fille*. This notice is also of importance because it suggests that the earliest doubles were all late bloomers. "When the spring flowers (tulips) are gone off, another beauty succeeds to them; the double tulips begin to open." I have an old catalogue of a later date (eighteenth century) of a "Gerritz, Fleuriste, à Amsterdam et Harlem," in which about seventy-five sorts are mentioned, including the two named above. Perhaps this is to be accounted for by the rage for double flowers which characterised the flower world about 1760. A pamphlet was published in 1758 on *A Method of producing Double Flowers from Single*, by J. Hill, and it so happened the tulip was the one selected because "the course of nature may be traced in it easily." Alkemade of Nordwijk was one of the most noted raisers of double tulips, and many of the varieties, such as *La Grandesse*, that we now have in our lists, were raised by him. I feel certain too that doubling may come from either culture or some innate tendency in the bulb. Only this spring (1912) I found several of a striped bybloemen "Union Jack" had become semi-double.

At the present double tulips do not seem to be much appreciated, judging from the little prominence given to them in a modern dealer's list; taking a well-known list issued from Birmingham in 1911, I find eighty singles to thirteen doubles. To me the value of the double varieties is their suitability for pot plants. There is magnificence about them which appeals to my love of a mass of glowing colour. For bedding they are also very striking, but, for one year when they come to perfection, there are three or four when the weather is not sufficiently kind for them, and they then present a most miserable appearance. In more favoured parts of England than the Midlands, I dare say they succeed satisfactorily. One of my very great favourites is *Schoonoord*

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(The Beautiful North), illustrated in Plate VI. Mr. J. T. Bennett-Poë grew some "under glass" (blooming about March 25) this spring, and he thus spoke of it: "I have never seen anything at all like it. I should not like to be without it as long as I grow bulbs." To me doubles are the least interesting of all tulips, but there are exceptions, as, for example, Schoonoord and Safrano. In the following list I have confined myself to those varieties of which I have personal knowledge:—

Orange and Yellow

T *Couronne d'Or*, orange-yellow.

T *Safrano* (*Brimstone*), warm pinky-yellow, a lovely colour.

M *Toreador*, reddish-brown and orange.

T *Van der Hoef*, pure yellow.

Pink and Rose

M *Anna Roozen*, deep rose and white, good forcer.

T *La Grandesse*, deep rose and white.

M *Lord Beaconsfield*, dark rose.

M *Murillo*, white and rosy-pink.

M *Couronne des Roses*, splendid deep rose and white, good in pots.

M *Parmesiano*, compact bloom, rose and white, early variety.

M *Premier Gladstone*, bright rose-red.

M *Salvator Rosa*, semi-double, deep pink and blush.

Red

M *Cochineal*, brilliant crimson.

M *Don Carlos*, one of the best reds (new).

T *Imperator Rubrorum*, red.

M *Luminosa*, brilliant red, semi-double.

T *Vuurbaak*, orange-scarlet.

Red and Yellow

D *Tournesol*, red and yellow.

Violet

M *Lac van Haarlem*, lilac-violet.

T *Turban Violet*, violet.

White

T *La Candeur*, white, outside petals at first green.

T *Rose Blanche*, pure white.

T *Schoonoord*, like a white peony. Very beautiful.

CHAPTER IX

COTTAGE VARIETIES

CERTAIN things are exceedingly difficult to define. A Cottage tulip is one of them. The varieties vary so much in colour, shape, size and marking that, beyond saying they are the rejected of the florists, I can think of no formula of any respectable length to embrace them all. Thus it is necessary to get a clear idea into our heads of what exactly a florist tulip is, before we can define with exactitude a "Cottage" flower. This definition, or rather an explanation of this, will be found under the heading of "The Florist Tulip" (p. 54). In a sense, both Darwins and Rembrandts are Cottage varieties; or to put it in another way, two more or less well-defined groups—one of strong and tall-growing "bybs" and roses, with for the most part impure bases, and the other of the same tulips in a rectified state—have been singled out for special names, and there is no valid reason why others should not be formed. To a small extent, and locally, we have them now in the "*Tulipes Parisiennes*" in the list of Vilmorin of

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Paris, and in the "Old Dutch" and "Breeder" tulips of De Graaff of Leiden.

This section began to meet with appreciation somewhere in the eighties, and it owes its inception and gathering together to the late Wm. Baylor Hartland of Cork and Peter Barr of London. These pioneers ransacked the gardens of the British Isles for old-fashioned varieties, and their success has largely made this section what it is. In 1896 Mr. Hartland exhibited a large collection of his varieties at a show at Cork on April 28 and 29, and in the autumn of the same year published, under the title of *Original Little Book of Irish Grown Tulips*, a unique list of varieties with descriptions, and containing also extracts and original articles of much historical value. It is one of the brochures quoted in Solms-Laubach's work on the Tulip.

But I must somewhere get in a growl about nomenclature. It is positively bewildering, and the aliases that some flowers have to support would do credit to a hardened criminal. Columbus, French Crown, and Gala Beauty are all the same thing; so too are Hobbema, Le Rêve, Sarah Bernhardt, and American Lac. Somehow naming has always been a bugbear among tulips, partly owing to their peculiarity of changing their colouring, and from being a self passing into stripes and feathers; partly owing to the wish to tickle the public taste with a make-believe novelty, and partly because of the lack of knowledge on the part of an introducer who thinks he has picked up something new when all the time it is nothing of the sort. It would not be taking enough perhaps for the popular ear to have called Scotia, Caledonia flamed, or Silver Queen, Isabella rectified, like the florists speak of Sir Joseph Paxton flamed and feathered. But, all the same, it would have tended to prevent confusion.

Why should an old variety like Mrs. Potter Palmer (Darwin) be rechristened "Fashion" (there being already a Cottage

"Fashion") or D. T. Fish? Or why should Yolande become Duchess of Westminster?

Cottage tulips do not lend themselves so well as the Darwins to cultivation in pots. Some have not stiff enough stems, and in many varieties the flowers are sure to "spread-eagle" or, as it is more technically called, "Quarter." Yet a few do quite well; *e.g.* the bizarre, Darwin-like varieties such as Jaune d'Oeuf and Clio (Bronze Queen); and such flowers as Inglescombe Yellow, Isabella, and Golden Crown. Their real place is out of doors, either planted in clumps in herbaceous borders, or in beds by themselves. They have one advantage over Darwins, inasmuch as there are many dwarf-growing varieties, such as Gloria Mundi, Glare of the Garden, Pompadour, and Le Rêve, which come in for positions where taller ones would be out of keeping, or for wind-swept places where higher-growing sorts would be broken off. If Elegans is reckoned as belonging to this section, it ought to be mentioned as being good for planting in grass.

In introducing my selection, I ought to say that it must not be supposed that all the varieties now enumerated under the head of "Cottage" have been found in British gardens—some have been traced to France, an increasing number to Holland, and one or two possibly to America.

I append the names of about sixty good varieties; probably my penchant for browns and stripes has led me to put more varieties under these headings than many would have done, but this I cannot help.

ART SHADES

Under this head are collected a number of indescribable shades—in most cases the colours blend imperceptibly one into the other.

Beauty of Bath (tall), soft, pale yellow passing to a pinky-
C

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lavender, deepening in shade as it gets to the centre of the petal, a large, long-shaped bloom.

Fairy Queen (tall), has goblet-shaped flowers of a rosy-heliotrope, margined an amber-yellow.

Hammer Hales (medium height), this long-shaped flower is one of the largest Cottage tulips; colour mahogany-brown, edged orange.

John Ruskin (tall) has a large egg-shaped bloom of apricot, rose and mauve shading, with a pale yellow edge to the petals.

Kingscourt (Cardinal Manning), (tall), dark rosy-violet flower, flushed with rose-brown.

The Fawn (tall), a large, pale flower with rosy fawn-coloured flames on a soft-flesh ground.

BRANCHING TULIPS (*T. Pluriflores*)

Mons. S. Mottet.—The first of a new race of hybrid tulips raised by Mons. G. Bony of Clermont-Ferrand in France. The original of the strain was found in an old French garden. Each plant has from three to six large egg-shaped, white flowers, which flush with age similar to Picotee or Golden Crown. They require a rich soil. I think they will prove very useful for bedding in masses. The varied heights of the blooms have a distinctly good effect. This variety is a tall grower, and is quite robust and hardy.

BROWN AND PURPLE-BROWN

Clio (Bronze Queen), a tall Darwin-shaped bloom, just the colour of a well-baked biscuit.

Corydon (tall), yellow, shaded with heliotrope.

Golden Bronze (Toison d'Or), (medium height); a rich golden-brown flower, with an old-gold base.

Goudvink (tall). The counterpart of Clio in a rich tortoiseshell-brown, a grand plant.

Jaune d'Oeuf (tall), a brownish-yellow flower, petals edged with yellow.

Louis XIV (very tall and large), a deep rich purple, edged with golden-brown. A tulip of exceptional magnificence and stately bearing.

Lucifer (tall), a large reddish-orange flower of Darwin shape—perhaps hardly a “brown.”

Old Times (medium height), rich mahogany, shaded and edged with buff. Found by myself in an old garden at Hanmer in 1905.

MAUVE AND PINKY-MAUVE

Inglescombe Pink (tall), an indescribable medley of shades of rose, lavender, and yellow.

La Joyeuse (medium height), an exquisite, pinky-heliotrope flower.

La Parisienne (tall), a silvery-pink Mrs. Moon, very graceful.

Le Rêve (dwarf), salmony-pink flushed with lavender. Really a mid-season flowerer coming after the earlies and before the Darwin and Cottage tulips; a wonderful laster.

Salomon (tall), one of the most exquisite pale rosy-mauves. Created a great sensation at the Tulip Show in London in 1912.

Sir Harry (medium height), the breeder form of Striped Beauty. Selected by Messrs. van Waveren & Sons of Hillegom, and named after Sir Harry Veitch. A large, lavender-pink flower, very distinct, and always singled out in my garden for admiration.

ORANGE SHADES

Orange King (medium height), a splendid red-orange flower of much substance; ideal under electric light; good-sized flower.

Royal Visit (medium height), an apricot-orange flower, edged and shaded old gold; an exquisite bloom.

The President (medium height), almost a deep orange self, a long, pointed flower.

PICOTEES

Carnation (dwarf), white-feathered bright rose; long pointed bloom.

Elegans alba (medium height), a vase-shaped bloom of pure white with a wire edge of carmine running round each petal; very refined.

Golden Crown (dwarf), yellow, edged with scarlet; flushes with age.

Illuminator (medium height), the largest and best of the Billietiana type, deep yellow, feathered rich crimson.

Isabella (dwarf), deep cream, flushed with crimson.

Picotee (medium height), white margined with rose; flushes with age.

Pride of Inglescombe (tall), a white, pointed flower, heavily margined with rose, which gradually diffuses itself over the whole bloom; very late.

RED AND ROSE COLOURED VARIETIES

Cassandra (medium height), rather early, bright rose.

Elegans (medium), has long pointed petals of bright crimson.

Feu Ardent (tall), a large, cup-shaped bloom, rich mahogany red, early.

Gesneriana spathulata (tall), intense crimson, with rich blue base; one of the best of tulips.

Goldfinder (Cyclops), (tall), clear scarlet.

La Merveille (tall), a long-waisted flower of a delightful shade of orange-cherry.

Marksman (dwarf), rich orange-scarlet; most effective.

Mrs. W. O. Wolseley (medium height), rich crimson, pointed petals; ideal for beds and borders.

Panorama (tall), an immense globular flower of rich, orange-red shade.

Pompadour (dwarf), a long flower of intense crimson.

Scarlet Emperor (medium height), a magnificent scarlet self; one of the very best.

Scarlet Mammoth (dwarf), an immense goblet-shaped bloom of a peculiarly dazzling shade of crimson-scarlet; mid-season.

STRIPED ("BROKEN" OR RECTIFIED)

Chameleon (medium height), a pale yellow ground, flaked and splashed with maroon and heliotrope; generally admired.

Cherbourg (tall), a rich yellow bloom, feathered with red-brown.

Columbus (medium height), golden-yellow, with scarlet splashes.

Gold Mine (medium height), a rich, brown flower, striped with orange and mahogany; very handsome.

Striped Beauty (Summer Beauty), (medium height), lavender, rose and white; a tricolour of olden days.

Zomerschoon (dwarf), salmon-rose and pale cream; exquisite colouring. One of the oldest varieties in commerce.

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WHITE VARIETIES

Albion (tall), with age passes to white with mauve interior.

L'Innocence (medium height), a long pointed flower.

White Swan (medium height), a mid-season flower like *Le Rêve* and *Scarlet Mammoth*. An egg-shaped flower.

YELLOW

Avis Kennicott (tall), a handsome, long flower, a deeper shade than *Mrs. Moon* and approaching *W. T. Ware*.

Bouton d'Or (medium), rather a small bloom of the richest shade of yellow.

Ellen Willmott (tall), a fine, pale-yellow flower of pointed shape; later than *Solfatare*.

Dainty Maid (tall), a pleasing combination of rosy-mauve and white.

Gesneriana lutea pallida (Mrs. Keightley), (medium), a splendid pale-yellow flower.

Inglescombe Yellow (medium), a grand tulip; canary-yellow self.

Leghorn Bonnet (medium), soft, chrome-yellow, loosely built, which gives it distinctness.

Moonlight (medium), long primrose yellow; early, very beautiful in beds; lasts well.

Mrs. Moon (tall), magnificent golden yellow-waisted bloom.

Retroflexa (medium), soft yellow; an exceptionally elegant plant, the petals recurve in a most graceful manner; an ideal tulip for cutting.

Solfatare (tall), after *Ellen Willmott*, but much earlier; a sport from *Fulgens*.

Walter T. Ware (medium), unique, the deepest yellow tulip in the world; flowers of good shape.

CHAPTER X

DARWINS

THE strong-growing race of breeder tulips known as "Darwins" was first introduced into commerce in 1899 by Messrs. Krelage & Son of Haarlem. The original habitat from whence they were procured has never been divulged, but from the number of varieties that formed the original stock it is plain that they have been cultivated for a very considerable time, and, as all of them are excellent specimens of what a garden strain should be, endless care and patience must have been unstintingly given them. Was it the inmates of some monastery in Flanders who had nursed them? or the loving owners of some private domain in the Netherlands? or who? Mr. E. H. Krelage said at a dinner of the Horticultural Club some two years since, "It is enough that we have them." So we must be satisfied. It is only now that "Darwins" are beginning to be properly appreciated. I believe that the rise in prices which took place this spring (1912) is only the prelude to a far greater and wider popularity than this strain of tulips has heretofore enjoyed. They richly deserve it, for they are a wonderful ornament to our gardens at a time when bright colour is wanted.

Thanks, too, to numerous experiments, we have found out that many varieties are amenable to pot culture, and one of the pleasures that I look forward to every March is my greenhouse full of Darwins. To be seen at their best, the pots must be placed on the ground and not on the stages, otherwise one of the peculiar charms of these flowers cannot be seen, namely, their beautiful bases. An ideal place is a winter garden or large conservatory which is used for a lounge or smoking-room. I never advise anyone to try and

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get them earlier than the second week in March. If they do, almost to a certainty the stems will be weak, and they will want so much staking that a great part of their beauty will be lost. Now that Allwood Brothers of Haywards Heath have made their plant supports in several sizes, I "use no other." The time they save is very great, and, the support being in the centre of the pot, it has a neat and unobtrusive appearance. I usually pot the bulbs in the second week in October, and at once place them in a cold frame where they get abundance of air night and day. At first we shade heavily, but afterwards, as soon as they are rooted, the plants are fully exposed to the light. It is well, if extra fine flowers are wanted, to give plenty of pot room. Five bulbs in a 7-inch pot is my regular practice for getting "tip-top" blooms. We never plant deeply, seldom covering the top of the bulbs with more than half an inch of soil. Frost is always carefully excluded from the frames, and the plants are brought into the greenhouse, which usually has a day temperature of about 50° to 55° a month or five weeks before they are required to flower. For isolated massing in beds, or for clumps in the herbaceous border, this wonderful strain is superb.

If summer bedding stands in the way of planting Darwins for ornamenting the late spring garden, it should be widely known that these tulips bear transplanting as soon as the petals have fallen. If care is taken to get up the roots without breaking and not to damage the leaves, the plants hardly suffer at all from the operation. Any open, unused bit of ground will do to receive the bulbs until the foliage has died down, when the ordinary routine of lifting and storing may be carried out.

Darwin tulips are ideal flowers for cutting, and a certain number should always be grown in nursery beds for this purpose. I make a rule never to cut off more than one green

PLATE IV

BEAUTY OF BATH

CARNATION



leaf because such cutting does not injure the bulb in the least. So many excellent varieties are now available that I have had the greatest difficulty in confining my list to fifty. Had I included those with yellow bases, such as Lucifer and Clio, my list most certainly would not have stopped where it has. This leads me to again say that I regret very much the wrong nomenclature which is now almost universally to be seen in catalogues. *The original strain did not include bisarres*, and it seems to me to be entirely wrong to put them into it now. I only hope Messrs. Krelage and Messrs. Barr will steadily refuse in the future, as they have done in the past, to list any yellow-based tulip as a Darwin.

LIST OF FIFTY DARWIN TULIPS

The numbers immediately following the name refer to the pages and sections of the Colour Chart (*Répertoire des Couleurs*, Librairie Horticole, Paris, 1905). Some of these numbers have been supplied by Mr. Rudolf Barr, to whom my thanks are due for his kind help; some are my own. They purport to give the *outside* shade of the petals, but as so much depends on the age of the flower when gathered, and the light in which each one is examined, I cannot claim anything more than approximity for them. Where we have each done the same flower, in some cases, as in Professor Rauwenhof, we agree exactly; in others, as in Suzon, we seem rather far apart. I hope, however, the references will be found useful, and that they may serve as a basis for future observation.

Dark Shades

Faust (191.1), purple-maroon.

Frans Hals (185.4), deep reddish-purple.

Jubilee (189.4), rich blue-purple.

Morales (185.3), deep purple, with bloom on exterior.

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Velvet King (185.4), royal purple.
Zanzibar (172.4), deep, glossy maroon.
Zulu (193.4), purple-black, very tall.

Deep Crimson and Red

Auber (Gipsy Queen) (172.4), rich claret.
Harry Veitch (165.3), dark blood-red.
King Harold (165.2), deep rich crimson.
Millet (165.2), dark maroon-crimson.
Mrs. Potter Palmer (174.2), red-purple.
Raphael (182.3), dark reddish-claret ; a deep shade of Mrs. Potter Palmer.

Pink and Rosy Pink

Clara Butt (119.1), delicate rose-pink.
Edmee (157.4), rosy-cherry, edged blush.
Fanny (150.3), pale rose.
Flamingo (150.1), pink.
Haarlem (168.2), salmony-rose, edged pale pink.
La Fiancée, similar to Edmee, but paler and earlier.
Prince of the Netherlands (167.1), magnificent rosy-carmine with a paler edge.
Suzon (7.4), or dark part (157.1), rosy flesh, edged flesh.
Yolande (Duchess of Westminster) (119.2), salmon-rose, paler margin.

Purple

Marie (189.4), early blue-purple, tall grower, long flower.
The Bishop (189.4), true purple, round flower ; rather late.
Viking (189.4), medium height, intense violet.

Mauves

Bleu aimable (189.1), lovely vase shape, bluish-heliotrope ; extra.
Crépuscule (186.3), rosy-mauve.

- Electra* (175.2), silver-rosy lavender, very pale edge.
Erguste (187.2), deep heliotrope ; a dainty flower.
Euterpe (195.1), mauve with paler edge ; very beautiful.
Mauve Clair (175.1), petals flamed reddish-mauve, with pale blush edge.
Melicette (180.1), distinct open-shaped flower, rosy-mauve.
Rev. H. Ewbank (188.3), silvery-heliotrope.

Slaty-Lilac

- La Tristesse* (188.3), very tall, slaty-blue, edged grey.
Ronald Gunn (189.3), rather late, slaty-purple, with curious light tips to the petals as they are expanding.

Reds

- Ariadne* (116.4), brilliant red.
City of Haarlem (115.3), dull, blood-red ; very handsome.
Isis (113.3), fine tall scarlet.
Madame Bosboom Toussaint (156.4), rose, distinct.
Mr. Farncombe Sanders (111.1), rosy-crimson.
Orion (110.3), a very bright red, nearly scarlet.
Pride of Haarlem (116.1), old rose colour.
Prof. Rauwenhof (116.2), rosy-crimson.
Sieraad van Flora (157.2), tall, bright rosy-red.
Tara (168.4), ruby-red.
William Pitt (114.1), crimson.

White and Pale Shades

- La Candeur* (5.4), nearest approach to pure white.
Margaret (7.2), rosy-blush, nearly white outside.

CHAPTER XI

REMBRANDT TULIPS

THESE are broken or rectified Darwins. Except that they are taller and larger, they very much resemble the "Flamandes" or "Baguettes" of the French florists. Nantes has for many years been a centre for their cultivation, and, through the kindness of my friend Monsieur E. Gadeceau, I have grown some of the best varieties. I agree with what he says in his last letter whether we ought not to consider them "comme des Darwins dégénérées ou malades, comme il vous plaira." Of late years I have made a practice of marking and picking out all the broken ones amongst my Darwins, and I put these all together and plant them as a mixed bed. I like the bewildering medley of colour. To my eyes, it is a very effective and no mean substitute for that ideal glory of colour—a bed of modern English florist tulips well cultivated, well protected, and well arranged. "Not in Nature is there anything to compare with beds of such flowers seen as only they can be appreciated in the sunlight." Named varieties of Rembrandts are now to be had, and, as a sign of the times, I may mention that I was asked at the International Horticultural Exhibition by the head of a very well known Yorkshire firm of nurserymen to "write up Rembrandts." He was beginning to be asked for them, and in consequence he was introducing them into gardens with the happiest effects. Among the best I may mention (the descriptions are Krelage's)—

Anne Mary, feathered and flamed lilac.

Gretchen, vivid red on soft pink ground, white flame.

Marco Spado, fiery red on white ground.

Quasimodo, crimson striped.

Semele, large flower, vivid pink feathered.

Victor Hugo, deep crimson flamed.

CHAPTER XII

LATE DOUBLE TULIPS

THERE is nothing much to say about late double tulips except that nowadays the section is a very small one, and that they are of no use under glass. Out of doors I have grown a few from year to year, but they have seldom been a success. A great many "ifs" have to come off before they do what they are expected to do when planted. They produce immense blooms, and after rain or wind it is no uncommon thing to go out and find many of the heads snapped off. In the most favourable circumstances it is as much as they can do to hold themselves erect. If they had stems like walking-sticks it would be another matter, and they would be more popular. There is no doubt *Bleu Céleste* (Blue Flag) is a lovely shade of pale (or faded) blue-purple, and in sheltered positions is well worth growing. I always like the crimson and white striped *Mariage de ma Fille* for its quaint markings and old associations. This section flowers at the same time as the earliest of the Cottage tulips. I recommend them only to be used as clumps in herbaceous borders. Our climate is too uncertain to allow them very often to do themselves justice in large beds, where so much of the effect depends upon the soldier-like precision of the ranks of blooms and where many vacancies spoil everything. In a clump, unless it is part of a formal row, failures are not so conspicuous.

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The following are some of the best varieties:—

Bleu Céleste (Blue Flag), very tall; pleasing shade of pale purple-blue.

Count of Leicester, deep yellow.

La Belle Alliance, a bybloemen, white ground feathered and striped with purple.

Mariage de ma Fille, crimson and white stripes.

Rose Pompon, pale yellow with red stripes.

Yellow Rose, tall, yellow self.

CHAPTER XIII

PARROT TULIPS

“PARROTS” have been in existence for ages. At their first appearance people looked askance, and, as was the case with the doubles, called them “monsters.” In all old books they are delegated to a low position in the tulip hierarchy. It is extremely interesting to note that all the old varieties are bizarres. As I feel quite certain that any type of early or late tulip¹ may take on the spurs and lacerations which are characteristic of the parrots, it is not a mere chance that such is the fact. The probability is that those who tolerated bizarres went a little further and admitted parrots. At least they did not do to them what Alphonse Carr’s auricula

¹ I have seen the Early single Eleanora become quite a parrot in Zavanenberg Nurseries, Holland. The first break was in 1906. I saw the stock in 1908.

Messrs. Barr & Sons offer Sensation which came as a break in a bed of an old Dutch breeder tulip, *Reine d’Espagne*.

Mr. J. Duncan Pearson wrote me that in 1912 he noticed signs of parroting in *Gesneriana* major and Margaret (Darwin).

I noticed myself a Yellow Prince showing unmistakable signs some three or four years since at one of the exhibitions, and I have had Darwins develop spurs on the petals every now and again in my own greenhouse.

fanciers did to the pin-eyed auriculas—"crushed" is his one word of comment. The bizarre people, who were the Flemish, preserved the strange new monsters, for their taste for novelty was tickled. From them we have probably got our parrots, and their French names seem to support this view.

These quaintly-shaped flowers look well in clumps, although they are a little top-heavy. They may also be grown in pans or boxes for cutting, as there are many high-up positions in a room where they look very well indeed ; but they must not be forced, and they need not be put in the dark like the earlies.

An effective and rather uncommon way of growing them is in hanging baskets of wire or wood. Thickly moss all round the exterior of the receptacle, and fill the inside with a retentive soil of half leaf-mould and half good fibrous loam and sand. Place the bulbs so that some will grow through the sides and some out of the top. The basket can be started as an ordinary pot, care being taken to stand it on something so as not to flatten the bottom too much. A flower pot does very well for the purpose. When a few inches of growth have been made, it must be suspended in a greenhouse or winter garden and kept well watered, especially in hot, windy weather. So treated, each one will make a very pleasing object, the great uncouth and ragged blooms hanging down in charming confusion and displaying their quaint colouring and weird shapes.

The best parrots are as under :—

Amiral de Constantinople, scarlet and deep yellow.

Café Brun, reddish-brown and yellow.

Cramoise Brillant, blood-red.

Lutea major, yellow.

Markgraaf van Baden, orange and red.

Perfecta, golden-yellow, with some deep red splashes.

Sensation, purple and white ; an excellent novelty.

CHAPTER XIV

SPECIES OF TULIPA

HITHERTO I have only described "garden forms," but side by side with these in gardens there have generally been a certain number of wild species: very few, it is true, compared with the vast number of the others, but still they were there, and there they have been since the days of Gerard and Parkinson. It is a moot point if *T. sylvestris* is truly wild in England, but it has long been a denizen of our gardens. Other old inhabitants are the charming little Lady Tulip (*T. Clusiana*), the "Sun's Eye" (*T. oculis solis*), and possibly *T. suaveolens*, figured by Gesner, the supposed parent of the early race of Duc van Thols. These all came to us over three hundred years ago. Then there was a long interregnum, and, if we are to trust old works on horticulture, species of Tulipa must have become practically unknown to British gardens, for Miller (1732) does not allude to them in his *Dictionary*, nor Maddock (1792) in his *Florist's Directory*, nor Loudon in his monumental *Encyclopædia* in 1822. An interesting sidelight is thrown upon this disappearance by what Mons. Charles Malo (1821) says in his *Histoire des Tulipes* about *T. Clusiana*. He there speaks of its introduction or reintroduction into Parisian gardens by M. Robert, a Toulon botanist, and a M. Amoureux, who sent it to M. Cels under the name of *T. cypriani*.

What gave a lift up in popular estimation to the natural species was the opening up of Central Asia about thirty to forty years ago, and the explorations there of the Russian botanist Regel, who found and sent home many prizes, including *T. Greigii* and *T. Kaufmanniana*. Later still, the

expeditions organised by C. G. van Tubergen, junr., of Haarlem, added more magnificent flowers, including *T. Fosteriana*, *T. ingens*, and *T. præstans* (Tubergen). These Eastern species, combined with the much discussed Neotulips of Northern Italy and Savoy, provide a diversity of size and shape that we miss in the garden forms. The origin of these latter (Neotulips) is very difficult to determine. Their mysterious appearances and disappearances in well-known places have occupied the attention of several European botanists. Solms-Laubach (*Weizen und Tulpe*, 1899), Chabert (*Bull. de la Soc. Bot. de France*, vol. xxx., 1883), Fiori (*Malpighia*, vol. viii., 1894, and vol. ix., 1895), and Levier (*Bull. de la Soc. des Sc. nat. de Neufchatel*, vol. xii., 1884) have all written upon the subject and treated it very fully. As I have said elsewhere (page 84), the sudden flowering of tulips in my own churchyard at Whitewell this last spring, after the hot summer of 1911, may have some bearing upon their curious behaviour. These must have been there upwards of ten years; and until now have practically been without a flower since the year or two after they were first planted.

With the exceptions of *T. mauriana*, some of the *T. Billietiana* varieties and *T. Kaufmanniana*, I do not think any are very well adapted for beds. They are uncertain in their time of flowering, or rather I should say that it seems to be impossible to get any large number to bloom all at the same time. I imagine we have to depend very largely on newly collected bulbs. This would account for it. I fear that most of these grand new species from Turkestan, Bokhara, Persia, and elsewhere will not be found to be good doers. Few make any offsets; even such as *T. linifolia* and *T. Batalinii* increase very sparingly, although they seem fairly at home. With me the best of the big, gorgeous-flowered ones are *T. præstans* (Tubergen) and *T. Eichleri*. I have a whole lot which

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I have left undisturbed for two years, and it is from the behaviour of these that I say what I have done about these species. Among the smaller species, *T. linifolia*, *T. Batalinii*, *T. dasystemon*, *T. pulchella*, *T. primulina*, and *T. persica* are the most satisfactory. I have seen *T. persica* forming the edging of a border, where it has been left undisturbed for some years, doing very well. *T. dasystemon* does excellently, and increases. Its golden centre is very striking.

Tulips like the *T. Billietiana* series, *T. mauriana*, *T. margolletii*, *T. elegans* (a doubtful species), *T. Didieri*, *T. Didieri alba*, *T. strangulata*, and *T. primulina* may be treated exactly like the Cottage and Darwin tulips. They are just as satisfactory to grow, and seem to have taken kindly to our gardens.

The purposes, then, for which the majority of the species of Tulipa are most especially fitted are clumps of greater or lesser size in herbaceous borders and the rockery. In the latter, colonies of *T. linifolia* would be very bright, and, given well drained, light rich soil, ought to succeed if left alone. *T. dasystemon* the same. Isolated specimens of such species as *T. Greigii* and *T. Fosteriana* would be very effective.

The following is a list, with a very short description of the best and most satisfactory species :—

Billietiana.—Soft yellow flushed carmine, after Golden Crown. The variety Illuminator is the tallest, largest, and highest coloured form of this species.

Clusiana.—A slender plant, with white flower flushed with rose externally ; deep claret base.

Dasystemon.—White with a large yellow centre ; dwarf, many flowered.

Didieri.—A charming, slender-looking plant, with a long, slender, crimson flower.

Didieri alba.—Pure white.

Eichleri (Caucasus).—A magnificent crimson-scarlet flower.

Fosteriana (Bokhara, 1904).—Almost vermilion; some have dark bases, and some pure yellow.

Greigii (Turkestan).—A large flame-red flower, with a dark base bordered with yellow; leaves spotted.

Kaufmanniana.—Palest primrose; many have great flames of carmine on the exterior of the petals, and some of the same colour round the pale yellow base. It is called "Water Lily Tulip." An early flowerer. The variety *aurea* is a grand deep-yellow flower, whilst *coccinea* (Turkestan, 1900) is vivid scarlet with a yellow base. These two last varieties are very magnificent in full sunshine.

Linifolia (Central Asia).—A dwarf grower, with a widely open flower of sealing-wax red, and well defined, black base.

Marjollettii.—Slender-growing, pale yellow, exterior of petals rosy at the base; excellent for cutting.

Mauriana.—A grand, bright-red flower with yellow base; very lasting, an excellent doer.

Oculis solis (S. France).—Bright red, bordered yellow, black base.

Persica (Persia).—Dwarf, yellow and golden-bronze.

Præstans (Tubergen) (Bokhara, 1902).—Brilliant vermilion, several flowers on a stem; foliage light green and downy.

Primulina (Algeria).—Pale primrose.

Pulchella.—Very dwarf, brilliant lake-red.

Sprengeri.—Very late; brilliant scarlet.

Strangulata primulina.—Sulphur-yellow; very effective and pretty.

Sylvestris.—Bright yellow.

CHAPTER XV

THE FLORIST TULIP

TO write a full historical account of the development of the florist tulip from its earliest beginnings in the days prior to the celebrated period of the tulip mania until the present time would be a very lengthy performance. In pre-Parkinson days in England—that is, before 1629—technical colloquial names were given to the different markings of the petals, and we read of Dukes and Princes, and “Fooles Coates” and “Fooles Cappes,” thereby showing that the attention of tulip growers was directed to the varied markings of the flowers, so much so, in fact, that for convenience of reference these special names were coined. In France, too, before de la Chesnée Monstereul wrote *Le Floriste François* (1654), similar appellations must have been in vogue, for we find in this work the “broken” ones divided into Paltots, Morillons, Agates, and “les plus bells de toutes,” Marquetines, or, even more esteemed still, the “Marquetrines,” with four or five colours in their petals, each one clear and well defined.

Much the same happened in Holland. The variations were noted and a process of selection kept going on. Chapter XXII of the *Dutch Gardener* (English translation, 1703) is headed “What Tulips are esteemed to be the best,” and it begins “about this, all Florists are not of one mind, for some esteem the Violets striped with white. . . . Others prize the Bissants, yet both are to be esteemed, and a florist ought to be provided with both of them.” It ends “Yet every one has his Darling, and a Man’s Mind is his Kingdom.” Confining myself to the changes that have taken place in our own island, after Parkinson we come to John Rea (1665). In his *Flora* we have a long list of *Præcoces* and especially of *Medias*, but few

"Serotina." The diversity in the markings is noted, but no definition of the properties which go to constitute a fine tulip. "Agot," "Pass," and "Widow" are amongst the technical terms used, and "besides these, there are many pretty new flowers which arise from good self colours, which the French call Bizarz and we French Modes." A third edition was published in 1702, but beyond a number of names being added to the Medias, there is no important change and no desideratum described.

The earliest definition of a florist tulip that I have been able to find is that contained in Philip Miller's *Gardener's Dictionary*, 1732. It is so important that I give it in full. They are, as he says, "the Properties of a good Tulip, according to the characteristics of the best Florists of the present Age. 1. It should have a tall, strong stem. 2. The Flower should consist of six leaves, three within and three without; the former ought to be larger than the latter. 3. Their Bottom should be proportioned to their Top, and their upper Part should be rounded off, and not terminate in a Point. 4. These Leaves, when opened, should neither turn inward nor bend outward, but rather stand erect, and the Flower should be of a middling size, neither over large nor too small. 5. The stripes should be small and regular arising quite from the Bottom of the Flower; for if there are any Remains of the former self coloured Bottom, the Flower is in danger of losing its Stripes again. The Chives should not be yellow, but of a brown Colour. When a Flower has all these Properties, it is esteemed a good one."

During the eighteenth century French and Dutch designations crept into British nomenclature. Whitmill, in his *Gardener's Universal Kalendar*, published in 1765, mentions Bagats, "tall flowers, white and purple marbled, Agates, shorter flowers, veined with two colours," and Beazarts, "which have four colours tending to yellow and red of several sorts."

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Justice, 1764, who took special interest in Dutch bulbs, divided them into "Baguets, Byblœmens, which are a sort of Baguets, and into Bisards." Thus we see Dutch and French names for the divisions coming into use. In Maddock's *Florist's Directory*, 1792, "Agates" have dropped out, and "Roses" (omitted by mistake in this edition; see page 22, 2nd edition, 1810, edited by S. Curtis) have been introduced. The divisions are now "1. Primo Baguets; 2. Baguet rigauts; 3. Incomparable verports; 4. Byblœmens; 5. Roses; 6. Bizards. The first four have white bottoms or grounds and the bizards have yellow grounds." Thus we get a definite classification of the types of flower as it holds good to the present time, namely, Byblœmens, Roses, and Bizarres (see the schedules for the Royal National Tulip Society's shows).

To show the advance that had been made since Miller first published his *Dictionary*, I now give the properties as we find them in Maddock (1st edition, page 67):—"The stem should be strong, elastic, and erect, and about 30 inches above the surface of the bed. The flower should be large and composed of six petals; these should proceed a little horizontally at first and then turn upwards, forming almost a perfect cup, with a round bottom, rather widest at the top. The three exterior petals should be rather larger than the three interior ones and broader at their base; all the petals should have perfectly entire edges, free from notch or serrature; the top of each should be broad and well rounded; the ground colour of the flower at the bottom of the cup should be clear white or yellow; and the various rich coloured stripes, which are the principal ornament of a fine tulip, should be regular, bold, and distinct on the margin, and terminate in fine, broken points, elegantly feathered or pencilled.

"The centre of each leaf or petal should contain one or more bold blotches or stripes, intermixed with small portions

PLATE V

PRINCE OF AUSTRIA

FRED MOORE



of the original or breeder colour, abruptly broken into many irregular obtuse points. Some florists are of the opinion that the central stripes or blotches do not contribute to the beauty and elegance of the tulip unless confined to a narrow stripe, exactly down the centre, and that they should be perfectly free from any remains of the original or breeder colour; it is certain such appear very beautiful and delicate, especially when they have a regular narrow feathering at the edge; but the greatest connoisseurs in this flower unanimously agree, that it denotes superior merit when the tulip abounds with rich colouring, distributed in a distinct and regular manner throughout the flower, except in the bottom of the cup, which it cannot be disputed should be a clear, bright white or yellow free from stain or tinge, in order to constitute a perfect flower."

One can get a good idea of what an up-to-date tulip was like about the year 1800 from a fine plate in Thornton's *Temple of Flora*, which was published in 1799. Towards the year 1830, and for the next ten or twelve years, we find there was a tendency to be more strict in insisting upon evenness of the markings, the substance of the petals, and the purity of the base. Some of the celebrated flowers of this date are illustrated in Sweet's *Florist's Guide*, 1828-1832. Some ten years afterwards—that is about 1840—George Glenny, the "flower dictator," began to publish his celebrated *Properties of Flowers*. One by one all the best known and most widely cultivated plants of the day came under his notice, and he laid down arbitrary laws for their improvement. I suppose no one ever did more than he did to determine the directions in which so many flowers should be developed. Naturally he did not omit the tulip, and he framed twelve points, which must each one be satisfied by a good flower. The main differences to be noticed between him and Maddock are:—
1, The form and shape of the flower itself; 2, Quartering

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prohibited ; 3, The even disposition of the colours or markings ; 4, Unbroken feathering ; and 5, The behaviour of the beam. Many were the disputes which arose between Northern and Southern growers and exhibitors over some of these propositions. It was impossible to find flowers that fulfilled them all, and as a consequence people had to be content with the imperfect. It so happened that the Southern people valued most highly a good cup and a clear bottom, while the Northern growers insisted that the flaming and feathering of the petal were more important. The shape of the beam and the delicacy or heaviness of the feathering were also points which divided them. The establishment of the Royal National Tulip Society in 1849 did much to bring the Northern, Midland, and Southern growers together, and to remove the differences that existed. I am unable to give the date of John Slater's *Amateur Florist's Guide*, but I imagine it must have been published somewhere in the early fifties. In it we find a still further development of the necessary properties. The form of the cup or flower, the shape of the individual petal, the purity of the filaments, the homogeneity of the ground colour, the regularity and continuity of the feathering, the evenness of the branching of the beam, and the actual shade of colour of which the marking is composed are all considered important factors in the make up of a first-rate florist tulip. The latest writers on the qualities that an ideal flower should have are the Rev. F. D. Horner (who died July 1912), Mr. J. W. Bentley, Mr. A. D. Hall, and Mr. C. W. Needham. From *The English Tulip and its History*, published in 1897 by Messrs. Barr & Sons, we learn the desirable qualities of a modern flower. They are not so very different from those laid down by Slater, but there are advances—for example, in an ideal feathered bloom, the feathering must be entirely confined to the edge, the marking must be the same both on the inside and the outside of the petal, the colours must be more brilliant,

the beam must be distinct and "not broken by intrusive ground colour, and the branches must be fine and distinct, allowing the ground colour to be seen between them," and they must "unite gracefully with the feathering on the edges."

I fear even now the non-florists will hardly comprehend all these details, and the difference they make in a modern flower compared with one of sixty years ago. I can only suggest a visit to the National Tulip Show in London any spring when the opportunity occurs. Few realise the refinement and exquisite loveliness of the florist tulip, and the uninitiated scoff—but then they do not know. It was not a very good show in 1912. The season had been a very trying one; and on the show-day the light was fitful and the tulips missed that final touch to their loveliness which only comes from the sun's rays. The R.H.S. Hall was full of a wealth of bright bloom, but to a certain few there was nothing there but these tulips. The show tulip is an essentially British product, thought out and brought to its present perfection by a long line of raisers of our own country, including Clarke, Strong, Lawrence, Goldham, Gibbons, Slater, Hardy, Hepworth, Ashmole, Dymock, Horner, Lloyd, Thurstan, Barlow, Bentley, and Hall.

I would like to dwell on the history of its cultivation, but space forbids. The tulip cabinet is as ancient as the hills. The necessity for protection when in bloom has been for a very long time well known. There is a picture of a tulip shade in the frontispiece of *L'École du Jardinier fleuriste*, in 1764. The dates for planting and lifting are solemn seasons, observed from old time almost as if they were red-letter days in the ecclesiastical calendar. The method of committing the bulb to the ground is a sort of sacred rite. In a word, the orthodox planter of to-day does as his fathers did in very many ways, but not in everything. One seldom sees

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nowadays the old tent wherein the raised bed or beds were protected from the inclemency of the weather, and where seats were provided for the "curious" visitors. A movable glass light now does duty. It protects the growing plants from frost, and later on the flowers from wind and rain. The drainage of the bed is attended to more carefully, and if necessary it is raised six or eight inches above ground level. But four feet wide and seven rows of bulbs are still the practice, and if possible the soil is changed. Gross feeding has been abandoned.

The culture of the florist tulip is extremely simple. Good drainage, good but not rich soil—protection from frost, hail, and wind; care in lifting and storing.

I had a visit this last spring from Mr. C. W. Needham, and he told me I was growing my florist tulips "all right." I treat them exactly as I treat my others (see chapter on Cultivation), with the one exception that I cover them with lights in good time in April. It is practically a glass umbrella that I put over them, for the sides are only protected with "coir screening," which is a very open net made of cocoa-nut fibre cord, and allows a free current of air to pass through all the time. On the brightest days I throw a light shade over the top of the glass for six hours when the sun is hottest. The lights are fastened to wooden supports four feet clear from the soil, formed of good, strong posts and with cross pieces nailed to the top, running along both sides of the bed. Immediately the flowers are over, they are removed.

I have already said that the florist divides his tulips into Bybloemens, Roses, Bizarres, and Breeders. When a tulip breaks it may become either feathered (generally written fr.) or feathered and flamed (generally written fld.); thus we may have a Rose fr. and a Rose fld.; a Bizarre fr. and a Bizarre fld.; a Bybloemen fr. and a Bybloemen fld. We also get a Bybloemen breeder, a Rose breeder, and a Bizarre breeder.

These nine divisions, grouped in various ways or taken singly, compose the schedule of the Royal National Tulip Society. No, I am wrong. For the last four or five years two or three classes have been provided for Darwins and May-flowering tulips, and the Council of Management enlarged to include representatives of growers of the last types. I look forward to a time when the lion will lie down with the lamb—when there will be an adequate representation of all sections at a great show where the oriental magnificence of the garden forms will be a contrasting foil to the quieter glory of the English type; and when its "feast" day will be as an important one in the Gardener's Calendar as its younger rival the Rose Show is to-day. I have spoken of breaking. Two breeders of the same variety may break differently, one may become feathered and the other flamed and feathered. As they have broken, so they will remain, every offset repeating the marking of its parent. We thus can have a flower in three conditions—*e.g.* Sir Joseph Paxton. It is a Bizarre, and we have it as a breeder, a feathered, and a flamed. To have a variety good in the three conditions is rare, for more often than not we only have it in two, like Dr. Hardy and Modesty, or only in one, as Glory of Stakehill. It is a strange fact that the brightest coloured and most pleasing breeders do not as a rule give the best and most beautiful rectified flowers. The reverse is usually the case.

Again a breeder may break into a feather, but that particular break may be a bad one, or it may be a good one. As the original character of the break is retained in the offset, which in turn becomes the flowering bulb of the succeeding year, it is important to know if we are getting a good strain when we get a new tulip. The name is not everything, we must have the additional information about its strain. To produce the finest show blooms there are many little details of culture which must be attended to, and which no book can

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teach. It is impossible to tell the exact richness of any particular soil except by practical experience. We have to learn what, if any, artificial drainage is necessary. Intuition born of close observation has to tell us the psychological moment at which to cover the buds. And even then, such is the inconstancy of the flower, the most skilled grower can never be sure of what he will get in any particular year. The well-behaved plant of several seasons may suddenly "go wrong," while others which he had spared for the last time last year have given him unexpected surprises. "In short," to quote J. W. Bentley in *The English Tulip*, "it may be said that it is the bewitching combination of anticipation, disappointment, and unexpected delights which makes tulip-growing so fascinating to its votaries."

The Royal National Tulip Society publishes a full list of all the flowers shown in the various classes in its annual report, and from these a selection may be made by anyone wishing to increase their stock; but, as one name will be the same as another to a beginner, I append a list of a small collection which, if acquired, will serve as a nucleus for a more extended one. Messrs. Barr & Sons are, I believe, the only dealers who list these florist varieties. If, however, a *new member* has any difficulty in procuring what he wants, a letter to Mr. Peters, the genial Honorary Secretary (W. Peters, Farcet House, Cambridge), will result in his being put on the right way to get them.

Byblœmens

<i>Feathered.</i>	<i>Flamed.</i>	<i>Breeder.</i>
Talisman.	Talisman.	Talisman.
Trip to Stockport.	Duchess of Sutherland.	Ashmole's seedling
Bessie.	Chancellor.	126.
	Geo. Edward Scho- field.	Eliz. Pegg.

Roses*Feathered.*

Annie M'Gregor.
Mabel.
Mrs. Collier.
Modesty.

Flamed.

Annie M'Gregor.
Mabel.
Madame St. Arnaud.

Breeder.

Annie M'Gregor.
Rose Hill.
Mrs. Barlow.

Bizarres

Sir Joseph Paxton.
Masterpiece.
Wm. Annibal.

Sir Joseph Paxton.
Sam Barlow.
Dr. Hardy.

Sir Joseph Paxton.
Goldfinder.
Alfred Lloyd.

CHAPTER XVI**CULTURE UNDER GLASS**

THE purposes for which tulips are grown under glass fall under two main heads—1, the providing blooms for cutting, and 2, the decoration of the greenhouse or dwelling-house by means of plants in pots. I propose in this chapter to deal with both purposes in some detail.

PART I**HOW TO GROW BLOOMS FOR CUTTING**

For very early flowering, say in mid January or a little later, special means have to be taken to obtain good results. The great difficulty the private grower has to contend with is, how to get a long enough stem to make the flowers of use for either table or room decoration. Early-flowering varieties such as La Reine, Rosamundi, Huyckman, Fred Moore, and

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Yellow Prince are alone suitable for the purpose, and some of these, even if treated in the ordinary way as pot plants, would fail to give satisfaction. Very many of them are naturally dwarf growers, as anyone may see who pays a visit to the neighbourhood of Haarlem and Hillegom when the early flowers are in bloom. So much is this the case that it is quite possible for any one to know (say) Cottage Maid under glass quite well and yet not to recognise it in the open, and *vice versa*. The problem of the long stem is all-important. To amplify and substantiate my own procedure, I have paid visits during the early part of this year to certain establishments where tulip forcing is carried on in a very large way; and I wish here to acknowledge my indebtedness to Messrs. Victor and Thomas Page of Hampton, and to Messrs. Lowe and Shawyer of Uxbridge, for receiving me as they did and so kindly giving me much valuable information. Tulips before the 12th to 15th of January are much too ticklish a crop for me to advise anyone but the most experienced to attempt it, and the market gardener who is meditating taking up this branch of the cut-flower trade should proceed *most* warily. The necessary factors for success are large, well-ripened bulbs, early boxing or potting from the end of September onwards, a temperature of say from 65° to 70° until the buds are just beginning to show colour, and then a slight drop until they are cut, and, what is most important, a heavy shade during the whole of this period.

As soon as the tulips are boxed they must be stood outside and covered to the depth of about two inches, partly to keep the soil moist and encourage root growth, partly to exclude frost, and partly to begin the drawing-up process. One firm told me they used Lily of the Valley roots. Any medium will do, provided there is nothing in it to start any fungus growth. Then the September planted bulbs may be introduced into heat about the 5th to the 10th of December.

Different varieties require different treatment (thus Yellow Prince requires more heat than Fred Moore), but these details will be found out by practical experience. It is enough for me to put growers on their guard. The shading used is fairly heavy. What we locally call wrappering, or coarse stuff that very rough aprons are made of, is about the best thing.

It is only in large places where tulips are required in considerable quantities that the foregoing treatment would be practical. In establishments of ordinary size good use can be made of any solid staging which has hot-water pipes under it, and where the front can be closed in so that the bulbs will be in almost total darkness. I have grown Duc van Thols (scarlet), Proserpine, Yellow Prince, Duchess of Parma, Rose luisante, Prince of Austria, and others in this way, and have had most satisfactory results. I flowered some Duc van Thols on January 26, 1912, with stems $9\frac{1}{2}$ to $10\frac{1}{2}$ inches high, that had been boxed just a month, while in other cases the period was from six to seven weeks. All these were planted in the ordinary way and at once put under the staging, and, beyond keeping them dark and sufficiently moist, they gave no trouble whatever; the blooms lasted pretty well, but perhaps not so long as if they had been brought on more slowly.

When tulips are not required until February and early March, there are a considerable number of "any fools" varieties, as Mr. George Sawyer very happily called them, which are bound to do well; such are Fred Moore, Duchess of Parma, and Prince de Ligny. These are improved with a little heavy shading during the early part of their growth, but it is not necessary, as they naturally develop good stems under glass.

When we come to March and early April there are two or three "Cottagers" that will give good blooms. Isabella is one of the very best of all tulips for mild forcing, if such it

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can be called. The rosy-pink, widely feathered edge on a groundwork of deep cream is a lovely combination, and it is deservedly one of the popular favourites with my visitors. Golden Crown is another variety to note. But the tulips for this period of the year are the Darwins. It has been found during the last few years that many of them are quite amenable to this form of culture. I have had surprisingly good results myself, and I do not hesitate to advise anyone who can afford the room always to grow some under glass.

The treatment I pursue is simple. I box or pot the bulbs at the beginning of October, and place them in a cold frame, from which frost can always be excluded. In the last week of January or the first in February, I bring a first batch into a cool house, which varies between 45° at night and 55° by day, and bring them slowly along, giving as much air as possible and staking when necessary. In ten days' or two weeks' time a second lot is introduced, and by this means I get a good succession of bloom. A list of some of the best varieties is given on page 107.

For forcing for cutting it is not necessary to be too particular about the soil—any soil will do if it is fairly light and porous. Bulbs may be planted an inch apart, or in the case of the large-growing Darwins an inch and a half. The bulbs need only just be covered. I am disposed to think that varieties which have a long, hard, pointed brown skin are all the better for it being taken off before planting. We are inclined to imagine that growers of a hundred and fifty or two hundred years ago were a little fussy and pedantic with all their minutiae of planting directions; but I have long since come to the conclusion they were not such old fussers after all, but that there was generally some fire with their smoke. From what I have been recently told, this question of the outer skin being removed before the bulb is put into the ground or potted is one to which we might give more attention.

PART II

HOW TO GROW PLANTS IN POTS OR BOWLS

There is really not very much to say about the cultivation of tulips in pots. The ordinary routine treatment of forced bulbs suits tulips very well. If I make any difference in the soil, it is that I try to make it rather more retentive of moisture, but at the same time I am careful to keep it as porous as possible. I put more leaf-mould in my mixture than I would for daffodils or hyacinths. Tulips like plenty of water, but they don't care for it to be stagnant. The two greatest difficulties I find are the provision of a suitable plunging medium and the getting some varieties long enough in the stem to look well. If possible, I would not plunge them at all. In my own case it is not essential, as I have sufficient frame room, which I can shade heavily until roots are formed. Then to draw up the varieties that need it, such as Proserpine, I place the pots under the staging of the greenhouse where the pipes are never very warm, and where I can conveniently darken it with mats for a short time when they are first brought in. During the period the pots are in the frames I give abundance of air both night and day, and I am careful not to let the soil get soaked. It is almost unnecessary to mention that the pots should never be allowed to become frozen at any period. When bulbs are growing in the greenhouse, and especially during the time they are under the staging, they are liable to be attacked with green fly. A sharp look-out must be kept, and either syringing or fumigating resorted to immediately any signs of the pest are seen.

With regard to the growing of all bulbs in bowls—that is, receptacles without any holes for drainage at the bottom—I have, after a considerable number of experiments, come to the

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conclusion that it matters very little what it is that is used to fill them with. I have had splendid results from employing ordinary light garden-soil, common coarse white sand, or *finely* broken up peat (peat-moss litter)—just as good as I have ever had from using the most expensive made up “fibre.” This method of culture I never recommend to anyone who can get good soil. But as there are many cases where it is impossible to get it, a substitute becomes a necessity. I feel, however, that I must warn those who are not accustomed to grow bulbs in bowls that tulips are the most difficult of all to manage, and that they need particular attention if the best results are to be attained. Cultural details are now given in so many bulb lists that it is unnecessary for me to say more on this subject beyond this, that if tulips are decided upon I should advise a first trial with the “easy” ones, such as Scarlet Duc van Thol, Yellow Prince, Vermilion Brilliant, White Hawk, Brunhilde, Rose luisante, and Prince of Austria.

A pleasing and rather uncommon way to utilise Parrot tulips for conservatory or winter garden decoration is to grow them in wire baskets suspended from a roof. The receptacle should be lined with a thick layer of living moss, and the middle filled with a light compost. Plant some to come out of the sides and others to grow out of the top. Start them in a cold frame, placing the baskets on inverted pots, and suspending them as soon as the growth requires it. The stems are naturally rather weak in proportion to the bloom they carry, and it will be found that they hang down, and if the basket is high enough up to look under the tulips, the *tout-ensemble* will be most effective.

Darwin tulips do very well in pots if they can have cold frame treatment and not be put into heat until the second or third week in February. The temperature should not be above 50° to 55° by day, nor below 40° at night. To get the most enjoyment out of them, put the pots on the floor

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of the greenhouse when they are in bloom arranged in a group. In this way it will be possible to see the beautiful bases which otherwise would be out of sight.

Pots of any size may be used provided the number of bulbs used is in proportion to the diameter of the pots. It is very important to realise that there is a happy mean between overcrowding and niggardliness. It is the hitting this off that adds so much to the effectiveness of all tulips in pots. I put three earlies in a 5-inch pot; five in a 6-inch; six or possibly seven in a 7-inch, twelve in a 10-inch, and so on. This is quite thick enough. Whether it be tulips or any other flower, I like to see something of the green leaves with which Nature has endowed them as well as the flowers. Another important factor in the look of a pot is its height. A few years ago I made the acquaintance of dwarf pots, or in the large sizes what may be called deep pans, and I have found them to be such an improvement on the old, taller ones that now I invariably use them. Another little detail that counts for something is the form of support. Last winter I used a wire arrangement made by Allwood Brothers. It was originally intended for Carnations, but it is equally good for tulips. It takes the form of a wire circle supported on a central stick, and it is very easily and quickly put off and on, and looks neater than sticks and raphia.

CHAPTER XVII

CULTURE IN THE OPEN AIR

FROM questions which are frequently asked, I think that I cannot be too simple or explicit in explaining the details necessary or conducive to success in the open. As the results which I attain at Whitewell are certainly very

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satisfactory, I have decided to explain the methods which are practised here, mentioning as occasion requires divergencies which in certain other circumstances may be found useful.

My soil is on the stiff side, and when it is damp weather it is what old James Green used to call "loving stuff." "Because it so sticks," he used to say. Many a time when he has finished "puning" a post, he has had a good shovelful on each boot. Hence my aim has constantly been to make it more porous and not so "loving." To do this I have incorporated, at various times, dead leaves, strawy cow manure, peat-moss litter broken up fine, and last, but far from being the least important, I have topdressed with slacked lime at the rate of about a ton and a half of lime to an acre. The longer I garden, the more do I believe in lime. It is the fairy godmother for most soils. It makes heavy soil lighter, and light soil more retentive. It is the key of nature's store cupboard. It sweetens the sourest and most infested of soils. To tulips lime seems peculiarly welcome, and they show their liking for it in the heightened colour which they develop. I have often expressed to Messrs. Clark and Co.'s representative at the Spring Shows at Vincent Square my surprise and admiration for the wonderful colouring of their chalk-grown flowers from Dover.

The tulip is a very hardy bulb, and frost never hurts it as long as it is safe below ground, and it would never hurt its leaves and stem were they allowed to thaw gradually without any sun falling upon them. For this reason I find, speaking in a most general manner, that tulips which are planted in higher ground which is not so subject to spring frosts, always do better and get less "fire" in their foliage than those grown on lower ground which is more exposed to them. In certain years the contrast is very great, and almost has to be seen to be believed. Sometimes with more favourable

PLATE VI
SCHOONOORD



Robert Riddle

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weather it does not seem to make much difference, but these occasions are the exceptions.

PLANTING

Time of Planting.—If tulip bulbs are kept in a dry, dark, and fairly airy place, they will not show any inclination to make roots until November, and but few will have made any top growth. If they have, they are not much, if any, the worse, and may be planted with the utmost confidence if the young growth has not been bruised or broken off. I endeavour to get all my best bulbs in the ground between say the 20th of October and the 15th of November. Lord Mayor's Day (November the 9th) has been from "time immemorial," so to say, the ideal planting time of the old fanciers. But I have so many bulbs to put in that I am forced to extend the period, and one year I planted up to the week before Christmas, and although the ground was then just like mortar, as it had been excessively wet for weeks before, I never had a better show than in the succeeding spring. On this occasion they did not mind the condition of the soil in the very least, but I do not recommend what I did then as a practice to be followed. Far better wait a bit after wet weather until the soil is again in a fairly dry condition. Different soils require different periods in which to dry, so I can lay down no hard and fast rule how soon one can plant after rain. It is all right when the soil does not clog the spade or trowel. The foregoing directions apply to first-size bulbs. If we are going to plant offsets, say to increase our stock in some out-of-the-way nursery bed, then I advise planting in September at the latest. The little bulbs succeed much better if put in then, and many will flower in the following spring which would not otherwise do so. The very smallest little chips are not worth putting in

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unless the variety is a valuable one, or one that for some other reason we wish to increase as fast as possible. These tiny offsets, if planted, must have a protection of leaf-mould or "peat-moss," which need not be removed but can be just turned over at lifting time, or of rushes, heather, dried bracken, or similar covering, which must be taken off when an inch or two of growth has been made.

Situation.—A warm, sunny, and sheltered position is the ideal one to choose. Avoid, as far as possible, damp, low places which are known to be exposed to spring frosts. Also wind-swept situations, remembering that some of the Darwin and Cottage tulips bear large flowers, and that many grow from 2½ to 3 feet high. I have to plant anywhere to accommodate all my five hundred varieties, and I find if these extremes are avoided that there is little difference in the behaviour of the bulbs in this place and that. In most gardens it is impossible to pick and choose as one might wish, so it is well to remember how accommodating the tulip really is.

Soil.—Some cultivators say that on no account must tulips "be planted two years in succession on the same spot." This is too sweeping a statement. I would never do it if I could help it; but Hobson's choice has been mine on many occasions, and I have never seen any great evil follow from the practice. I should say, however, that the soil has always been very deeply dug and generally a little lime or bone-meal added before the "second time of asking." Without this thorough digging, I would never think of trying it. Tulips do best in a fairly stiff, well-drained soil, but any good garden soil will grow them very well. The only thing is not to expect such fine flowers from a sandy as from a heavier and more retentive one. In extremely light and sandy places they are benefited by a layer of cow manure and rotten leaves, some 2 to 3 inches below the bulb, as this keeps the ends of the roots cool; and also by a dressing of lime. If the soil is

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heavy, it is good to incorporate into it leaf-mould, soil from an old cucumber bed, peat-moss, strawy rotten manure, and lime. In both cases break up the soil to the depth of 18 inches; tulips do not like stagnant moisture, and this helps the drainage.

Depth to Plant.—The usual rule must be followed. In light soils plant deeper than in heavy ones. I have measured a good many of my own bulbs before they were taken up, and I find 5 inches or $5\frac{1}{2}$ inches from the bottom of the bulb to the surface of the soil is our invariable rule for all except the small species and varieties such as *T. linifolia*, *T. dasystemon*, or *T. pulchella*. These should not be more than 3 inches deep. I have found stray bulbs of both larger and smaller varieties which have flowered well at greater depths.

How to Plant.—Under this head I must mention first of all the question as to whether the brown skins should be left on or removed previous to committing the bulb to the ground. Eighty or so years ago, the old florists advised the skin being carefully taken off. I have put in thousands both ways, and with certain possible exceptions I have never seen the least difference in the results. This will be comforting to those whose bulbs, like my own, generally lose their brown coats before planting time, or who receive such bulbs from the dealers. They are none the worse. It will, however, be frequently noticed that when the outer skin has gone, the white interior is bruised and often is slightly mouldy. Unless this mould is very bad no notice need be taken, but in future I am going to act on the cautious side, and dress them with finely powdered flowers of sulphur. I am told this is a splendid thing to prevent any decay or fungus, and I have seen the results at Balls Park, Hertford, where the tulips in the spring are always magnificent.

It is impossible to dogmatise upon the distances at which the bulbs should be planted. Everything must depend on

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the space to be covered and the amount of money that can be afforded to buy bulbs to fill it. To have a brilliant effect, they must be planted rather thickly. In good-sized beds the largest Darwin and Cottage varieties may be planted 6 to 7 inches apart, between bulb and bulb and early singles about 4 and doubles about 5 inches apart. In clumps I would never put fewer than six bulbs. Suppose the diameter of the circle is 11 inches, I would put five at equal distances round it and one in the middle. In beds the whole of the soil should be well dug to the depth of 18 inches, and fresh soil and leaf-mould incorporated when requisite. Similarly, I would do the same as far as possible with clumps. The individual tulips may be planted with a trowel, having marked the places beforehand so as to get the holes equidistant. Care should be taken to see that each bulb touches the bottom and is not hung up. In large areas planting may be done either by removing all the top soil to the approved depth and then placing the tulips on the spots assigned to them, and finally covering all up to the soil level; or bulbs may be "trenched in"—that is, they may be planted one row after another, the soil of the first hollow being removed to the opposite end of the bed to fill up the last row, then that from the second will go into the first, that from the third into the second, and so on. This is an excellent way to deal with nursery beds, or when they are to be used for cutting from. With my large quantity, I always plant in this way. My beds are invariably 4 feet wide.

LEAVING BULBS IN THE GROUND

I am quite certain that to get the *best* results tulips should be lifted *every* year. I cannot see what they can gain by being left in the ground during the winter. The actual bulb that flowered say this year is no longer in existence when the

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leaves and stem die down. It has finished its task weeks before, and the future is provided for by the new bulb. I have left tulips in the ground for three and even four years, and have had fairly satisfactory flowers each succeeding spring; but then I have also bloomed bulbs for two years running without lifting, and the second time they flowered they have been very poor and the leaves badly affected with "fire." This is a very common occurrence—in fact, I might, on the majority of soils, call it the usual thing. Again, in a stiff soil slugs worry the bulbs dreadfully. The stem decays, and very likely is removed to tidy up, and the hole which it was in never gets filled up. Down goes the slug, and at the bottom he finds a toothsome tulip, to which he is very partial. Slugs are very destructive in stiff land; they are not so troublesome in light soils, but even there my bulbs have suffered from them. If the soil is very light, tulips may do quite well for several years without being moved; but in such cases they are not so large as if they had been lifted and replanted. I once bought a delightful old reddy-brown and yellow tulip out of an old cottage garden at Hanmer. It had been there between fifty and sixty years, and it was only moved three or four times in all that long period. So the old lady said who owned it, and who remembered it being planted. I had about twenty bulbs the size of small hazel nuts when I first took them home in my handkerchief. Four years afterwards the normal bulb of Old Times (so I christened it) was as big as a small hen's egg, and the blooms had trebled in size. To sum up: my advice to everyone is "lift every year. It pays for the trouble in the larger flowers, and in the more healthy foliage."

LIFTING THE BULBS

Bulbs are ready to be lifted when the foliage has turned yellow. I find it a little difficult to determine the precise day

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Appearances are sometimes deceptive, and I have gone to a bed and found, although the leaves looked all dead, that the rich, ruddy brown which is the sign of ripeness had not begun to colour the bulb. However, tulips are such accommodating things that it is practically the same whether a bulb is a little under ripe, just right, or a little over ripe when it is lifted. In the first case it is pale in colour, but its skin does not so often split, and in the last case it is high coloured, but more often than not the husk falls off or gets very badly cracked before planting time comes round. I had for a long time been puzzled to find out why this brown skin should be as whole as it is on Dutch bulbs when on my own and on other British grown ones it so very often splits and falls off. But within the last few years I have had the opportunity of growing some in very light soil of great depth—soil in fact which in consistency resembles that of Holland. I have found that tulips from this garden retain their skins just like the imported ones. They do so even if they are over ripe when they are got up. The obvious conclusion is that the retention of the brown husk depends almost entirely on the medium in which a bulb has been grown. On light, sandy soils it does not split, and remains whole; on heavier and damper soils, it cracks and peels off. I must again say that it does not make the least difference if the skin is off or on when a tulip is planted. The only thing is one must be more careful in packing and handling it when it is naked; and those dry husks which are very frequently used for surrounding them in bags should be avoided.

When a bulb is lifted, the soil should be shaken out of the roots and the old stem taken off, care being taken in both cases not to injure the base of the new bulb. Even when a bulb has to be lifted when the foliage is green, I recommend it being taken away. It should then be cut off with a sharp knife, leaving two or three inches attached to

the base. Never put tulips in the drying boxes with the green leaves still on them. Again, do not leave bulbs on the beds exposed to hot sunshine, but get them put away in their drying quarters as soon as practicable.

DRYING AND STORING

Any dry and airy, but not draughty place, where the direct rays of the sun do not penetrate, does very well for drying and storing. On no account should a damp and poorly ventilated room be chosen. A good loft or shed, or an unused bedroom is excellent. If many bulbs have to be provided for, it is convenient to use wooden trays made like those made for potato "sets," with long legs at each corner to allow a free passage of air between each when they are piled one on the other. They may be made any convenient size, say 4 feet by 3 feet 6 inches, with supports $7\frac{1}{2}$ inches high, which is what I happen to use, or they may be a little narrower, which I am disposed to recommend when there is only one man available to move them about. When the roots have become quite dry, and come easily away from the base without injuring the outer skin in any way, the bulbs may be "cleaned" and the offsets taken off. They may then be put away till planting time, either where they were dried or in any similar dry and airy place. They do all right in paper bags if there are not more than a dozen or two of a sort, but they must be perfectly dry before they are put in. I like bags because it keeps them in darkness, for I have come to the conclusion that if they are stored where they get no light that leaf growth does not begin so soon. I emphasize this, because bulbs are so much easier to handle and so much more convenient to plant when there is no green sprout to be careful about.

Early tulips in my part of the world are generally ready

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to be lifted in normal years in the last week of June or first week in July, then the Cottage and Darwins follow. I believe the old Midland and North Country tulip men, who were and still are wonderful creatures of habit, say the second week in July for their florist varieties.

MANURING

Tulips like a good but not over rich rooting medium. I make no difference between them and daffodils in my preparation of the soil. Double digging to let air in is my sheet anchor. I have already referred to lime. I use a good amount, and give the ground a good dusting every two years and then fork it in. It should look like a scattering of snow when it is put on. This recipe is a little vague, but mathematically inclined gardeners may reduce it to greater exactitude by remembering that $1\frac{1}{2}$ tons per acre is the dressing I recommend. Raw bone-meal is my second stand-by. I use about 2 cwt. to the quarter acre, and apply it every second year, and as a rule alternately with the lime. Every fourth and fifth year neither bone nor lime is used. The ground is just dug, and nothing is added. The finer bone is ground, the more quickly does it act; hence I invariably get it "fine." To the uninitiated I may say in passing that raw bones can be had in several grades of coarseness or fineness; "very fine" or "fine" are what should be used, and I like "raw" better than "boiled." There is more goodness left in, although it may not be quite so quick in its action.

PROTECTION FOR TULIPS

Tulips are perfectly hardy. I have tried protecting the beds, and I have left them unprotected. In an ordinary season I have failed to see any difference at flowering time

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between those covered and those left uncovered. When, however, I plant very late in the season I always keep a sharp look-out for any signs of frost, and at the least indication I cover them with branches of heather loosely laid on, as the bulbs must not be frozen before they have made roots. Last year and the year before, I used, instead of heather, peat-moss fibre made fine, but not into dust. I buy what is used in the Canaries for packing tomatoes for exportation. It comes in large bales, and is easily broken up by rubbing between the hands. I put a layer 1 to 1½ inches thick on the beds or clumps on a still day; then to keep it from blowing about I just cover it with soil, and damp the top with the watering can. In winter, when it is always moist, wind does not affect it. When peat is used I never remove it, and it gets incorporated into the soil at lifting-up time. Heather, or any similar covering, I take away when about two inches of growth have been made. The show or florist tulips must be covered some time before their blooming, and the covering must remain in position until the flowers have past. This matter is explained, together with certain other details of culture, under the head of "The Florist Tulip" (Chapter XV). Taking a wrinkle from this procedure, I have in most years arranged to protect some of my Darwin beds with a stout wooden frame with movable "wrapping" (*i.e.* coarse material such as is used for making rough aprons or for putting over furniture when sent by rail). It is so fixed that it can be partly taken off on dull days or when I want to see the flowers. This lengthens the blooming period, and might be worth the consideration of those who grow large collections and who wish to have flowers for as long a period as possible. If a covering of any description is used, it must be removed entirely as soon as the blooms have faded.

GROWING TULIPS IN GRASS

I have had considerable experience with tulips in grass in our churchyard, and I cannot say that they are a success. If good bulbs are planted one autumn, they will flower excellently the following spring, and a few will do so again a second or possibly a third year; after that they go blind. They only seem to have strength to produce the one big leaf which is the sure herald of "no flower." Very occasionally a stray flower appears, and that is all. In 1912 I was surprised to see quite a large number of blooms, and the idea at once occurred that it was the result of the phenomenal summer of 1911. Possibly it was, and if so the further thought occurs, does it not throw some light on the finding of new Neotulips (page 20) every now and again at St. Jean, Bologna, and elsewhere, and then their mysterious disappearance? All I can confidently say of tulips in grass is that natural species such as *T. sylvestris* appear to do better than garden hybrids. For planting I strongly advise the use of Barr's bulb planter. It makes a hole of any required depth, and in doing so lifts a round bit of sod out of the ground. It is worth while to make the hole six inches deep, then put two inches of light, rich soil, with some bone-meal incorporated with it, at the bottom; on this place the bulb firmly, then knock away part of the core previously removed, and lastly place the round bit of grass on the top. If the operation is neatly carried out, there will be no traces of disturbance of the soil after the first shower or two of rain.

FALLING PETALS

Some one should go round all the tulips every morning when the blooms are fading, and pick off all the petals that have fallen on the foliage, and all from the ground. It is

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surprising how soon a petal will set up decay if it is allowed to remain on the leaves, especially in damp, hot weather. As I have stated elsewhere it is well to keep the foliage as green as possible for as long a time as we can, because on this depends the welfare of the new bulb. In some gardens the beds in which late flowering varieties have bloomed are wanted immediately for refilling with other things whilst the plants are still in full leaf. If the bulbs are carefully lifted without injury to either the roots or the leaves and at once put in somewhere "by the heels" to dry off, it is astonishing how little they suffer from the operation.

"FIRE"

This is the decay which so frequently appears about flowering time or a little before. A good cultivator will keep a look-out for its appearance, and cut out all affected bits. It is essential to examine the plants frequently, as unfortunately it spreads quickly and soon disfigures the plants and weakens the new bulb on which the flowers of next season depend.

SUMMARY OF THE MOST IMPORTANT POINTS

Take up all bulbs every year. Never plant two years in the same ground, unless obliged to do so. Plant early in November. Store bulbs in a dark, dry, and airy place. Never put bulbs away to dry in boxes with their leaves still attached. Watch continuously for any appearance of "fire," and at once cut out all affected bits. Plant small offsets or side bulbs in September, and protect them from frost. Remember tulips do not like stagnant moisture, nor do they succeed so well in damp, low positions as on higher and drier ground.

CHAPTER XVIII

TULIP COMBINATIONS

I HAVE from time to time jotted down pleasing combinations of two colours. In some cases the colours contrast and in others they blend. They may be useful as suggestions. It will be noticed that all the varieties in this list are either Cottage (C.) or Darwins (D.).

1. *Suzon*, D., flesh pink, and *Prince Maurits*, D., medium purple.
2. *Rose Beauty*, C., rose-red (30 inches), and *Morales*, D., deep purple.
3. *Ada*, C., white with mauve inside, and *Mrs. Moon*, C., tall, yellow.
4. *Ada*, C., white with mauve inside, and *Melicette*, D., lilac-mauve.
5. *Prince of the Netherlands*, D., and *La Tristesse*, D.
6. *Mr. Farncombe Sanders*, D., and *Suzon*, D.
7. *Suzon*, D., and *Bleu Aimable*, D., heliotrope.
8. *Sophrosyne*, D., rosy-pink edged blush, and *Paul Baudry*, C., brownish-red.
9. *Walter T. Ware*, C., very deep yellow, and *La Tulipe Noire*, D., nearly black.
10. *Morales*, D., and *Mrs. J. Robertson*, C., rich yellow.
11. *Inglescombe Yellow*, C., canary-yellow, and *Norham Beauty*, C., curious grey.
12. *Hippolyte*, D., deep mauve, and *Moonlight*, C., pale yellow.
13. *The President*, C., pointed orange, and *Gertrude*, C., palest primrose.
14. *Louis XIV*, C., deep purple edged golden-brown, and *Goudvink*, C., dark tortoiseshell-brown.

15. *Flava*, C., tall, pale yellow, and *Mrs. Kerrill*, C., blend of amber and light rose, dwarf.
16. *Morales*, D., and *Tara*, D., rich ruby-red.
17. *Rosetta*, C., soft rose, dwarf, and *Grand Monarque*, D., plum-purple, tall.
18. *Flamingo*, D., tall, soft pink, and *Ellen Willmott*, C., tall, pale yellow, pointed flower.
19. *Zulu*, D., tall, blackish-purple, and *The Bishop*, D., blue-purple; not so tall.
20. *Salomon*, C., pale heliotrope, and *Beauty of Bath*, C., soft pale mauve and yellow.
21. *Orange King*, C., orange-red, and *Mahony*, C., deep orange and brown.
22. *Lord Byron*, C., early carmine-red, and *Moonlight*, C., early long, pale yellow.
23. *The Bishop*, D., blue-purple, and *Solfatare*, C., tall, pale canary, long flower.
24. *Nigrette*, C., dark red-brown with pale tips to petals, and *Clara Butt*, D., pink.
25. *The Bishop*, D., and *Clara Butt*, D.
26. *Eric*, C., chestnut-brown, and *Madame Bosboom Toussaint*, D., rose.
27. *Orion*, D., bright red, and *Mahony*, C., deep orange and brown.
28. *King Harold*, D., maroon, and *Medusa*, D., salmon-red.
29. *The President*, C., orange, and *Night*, D., very dark, nearly black.
30. *Mrs. Moon*, C., yellow, and *Erguste*, D., mauve.
31. *Professor Rauwenhof*, D., rosy-red, and *La Tulipe Noire*, D.
32. *La Joyeuse*, C., pinky-mauve, and *Frans Hals*, D., reddish-purple.
33. *Isis*, D., tall bright red, and *Walter T. Ware*, C., deep yellow.

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34. *Pompadour, C.*, dwarf, rich crimson, and *L'Innocence, C.*, pure white.
35. *Sir Harry, C.*, mauve-pink, and *Mrs. Keightley, C.*, pale yellow.
36. *Cassandra, C.*, rose, rather dwarf, and *Solfatare, C.*, pale tall, yellow.

MORE GENERAL SUGGESTIONS ABOUT COTTAGE AND DARWIN TULIPS

1. A good mixture of mauve, heliotrope, and grey Darwins, with just a few dark ones amongst them. This makes a very popular bed. I prefer them not to be all the same height, and to look its best it ought to be so placed that there will be a dark background. As typical of what I mean, I would suggest such varieties as *Electra*, *Erguste*, *Euterpe*, *Gudin*, *Dream*, *Rev. H. Ewbank*, *Nora Ware*, *Madame Virnot*, *Mauve Clair*, with just one or two of varieties like *Morales*, *Jubilee*, and *Velvet King* dotted here and there.

2. A varied assortment of yellows (*Cottage*).

3. Pale mauve Darwins and pink and rosy-edged ones, such as *Antony Roozen* and *Edmee* with a few of a paler shade such as *Suzon*. Dark purples should also be included, but used very sparingly.

EARLY VARIETIES

The following make good combinations. They are given as examples, since it is very easy to add others from lists, as in most cases the height and time of flowering are stated.

1. *Chrysolora* and *Dusart*.
2. *White Hawk* and *Artis*.
3. *Van der Neer* and *Ophir d'Or*.
4. *Prince of Austria* and *Chrysolora*.

PLATE VII

SIR HARRY

SOLFATARE



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5. Duchess of Parma and Fabiola.
6. Grace Darling and Golden Queen.
7. Fred Moore and Yellow Pottebakker.
8. President Lincoln and Chrysolora.
9. Hector and Princess Hélène.
10. Brunhilde and Vermilion Brilliant.
11. President Lincoln and Primrose Queen.
12. Prince of Austria and President Lincoln.
13. A mass of Le Rêve by itself.
14. A mass of Couleur Cardinal.
15. A bed of Prince of Austria.

CHAPTER XIX

TULIPS WITH OTHER PLANTS

To be seen at its best, the tulip must be associated with congenial companions. There is something about the flower which makes it demand suitable surroundings. Unknowingly, and because circumstances have obliged me to do so, I have done just what it wants; and "although I says it who shouldn't" I never get such satisfaction anywhere from contemplating this Eastern denizen of our gardens as I do from my own plants. Again and again the remark is passed as I take my many visitors round, "However did you think of that lovely combination?" or "That was a bold thing to do: I would never have dared to do it, but how well it looks!" This latter observation was *à propos* of big blocks (8 or 10 feet by 4) of such tulips as City of Haarlem, Orion, Mr. Farncombe Sanders, and Prince of the Netherlands planted alternately, with equal-sized masses of very dark purples like Velvet King, Frans Hals, Giant, Jubilee, and Morales. It certainly was most effective as one came upon it all at once

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round a tall, thick, and naturally grown hedge of *Cupressus Lawsoniana*. I used to like it myself, and its sudden emergence into view always gave me intense pleasure. I want readers to notice the size of these clumps, for if any flower looks its best in a big mass it is the tulip. A second thing that I would call attention to is my seemingly casual mention of a hedge. Now my garden is all hedges or narrow plantations of evergreen trees and shrubs. It is broken up into little bits, and one cannot see anything like all of it at once. This is just the thing for tulips. It gives on all sides a dark tall background, against which they show to great advantage. "Your tulips, Mr. Jacob, *must* look well; you have got such good backgrounds all over your garden." I would advise anyone who has a similar vacant position, say a holly or a yew hedge on a border with a wall of deep green foliage at its back, to try planting some in front. A third consideration is the colour blending of the different varieties. Almost all my most effective and telling combinations come about by pure chance. To tuck away in comfortable quarters all my five hundred varieties, I have almost to plant them anywhere. There are lots of strange bedfellows in theory, but somehow they look "all right" when the blooming season comes round.

I adduce three things from my personal experience as above narrated. First, tulips look best in big quantities. Second, their having a good background to show them up makes a tremendous difference. Third, so long as there are *enough different sorts*, one should not be needlessly particular how they are grouped together. These seem to me the three most important things to remember in assigning tulips their quarters in a garden; and the success of such things as colour schemes in tulip gardens and of bedding arrangements depends in a great measure upon their being taken into account.

From these general considerations let me now give two illustrations of my meaning in detail. Backgrounds: these

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need not necessarily be dark. By a purely fortuitous circumstance, I found I had a long narrow mixed bed of pink and pale rose and mauve Darwins, with just a few darker reds and purples, against a wall covered with a deep rosy-purple Aubrietia. The effect was grand.

Another suggestion is to try and combine tulips with flowering shrubs. An American lady, Mrs. Francis King, who is well known in her own country as an authority on colour, and who honours me with letters from time to time, has published in *The Garden Magazine* of New York a most stimulating paper on "Colour Harmonies in the Spring Garden" (May 1912). Two extracts show what I mean: "Below and among these spiræas (*S. Thunbergii*) are the great tulip La Merveille, orange-scarlet, and the old double Count of Leicester in tawny-orange shades, and before the tulips lie low masses of the Munstead Primrose." And again: "As for tulips, the loveliest combinations under lilacs or immediately before them, would surely ensue, if groups of tulips Fanny, Carl Becker, Giant, and Koningin Emma were planted in such spots." Similarly, grey stone and red brick walls may be utilised if only ordinary care is taken about what is put in front.

BEDDING

Give me, I say, a huge mass of one single variety alone—I don't mind which one so long as there is enough of it. This is my ideal. Any carpet plant detracts somewhat from my ideas of the fitness of things. The tulip must stand alone. It is best alone. It is a Napoleon in its ascendancy. It is a Solomon in its magnificence. It is a Junius in its unsolved problems of many-sided interests. Somehow its spirit commands solitude. But not to all. A tulip is only a tulip to some. I am sorry, but I cannot help it—I cannot see all that that exquisite writer Forbes Watson (*Flowers and Gardens*)

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saw in the golden crocus or the pale green leaf of the narcissus ; why should I expect everyone to see with me all that I can see in the tulip ? Most of us have our favourite flowers and plants—more than one perchance, as there are more months in the year than one. What to me were all the flowers in the gigantic International Exhibition (Chelsea, 1912) compared to those tulip groups that an unfeeling and untulip executive had banished to the Ultima Thule of the Exhibition ! I have digressed enough. I must return to the practical problem of “Allowed a carpet is wanted, what had it better be made of ?” or “If there must be a different edging, what should it be ?” Plants like Ellen Willmott, Indigo Queen, or Queen Victoria, Myosotis (Forget-me-not), the double white Arabis ; some of the dwarf phloxes ; many of the aubrietias, both pale and dark ; primroses and polyanthus in variety ; grey-leaved plants like *Cerastium tomentosum*, *Festuca glauca*, or *Stachys lanata*, possibly cut down *Santolina incana* ; wallflowers from the softest yellow to the deepest crimson, and their near relation *Erysimum Allionii* ; and violas such as Maggie Mott, are all eminently suitable for one or other of these purposes. The following are a few specimens of how such combinations may be made :—

1. Deep orange and yellow polyanthus-primroses with dot plants of Fred Moore tulip.
2. Indigo Queen Forget-me-not with Bouton d'Or.
3. “Lavender” Aubrietia with the Darwin Erguste.
4. *Cerastium tomentosum* with Morales (Darwin).
5. A lavender phlox (*divaricata*) with Fanny (Darwin).
6. Queen Victoria Forget-me-not with Prince of Austria.
7. An edging of Maggie Mott viola round a bed of Frans Hals.
8. Double Arabis with Hector (early) here and there.
9. Mixed polyanthus of all shades of red and yellow with a fair quantity of mixed, late Darwin tulips.

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10. Madame de Graaff daffodil and Inglescombe Yellow tulip, planted alternately or in rows, in large beds, being careful that they are broadside on to the point of view usually seen. This double planting is a dodge I can strongly recommend. The same bit of ground gives two shows, and one is over before the other comes on.
11. The orange wallflower-looking *Erysimum* with Walter T. Ware tulip.
12. A centre of a late Cottage such as Pride of Inglescombe with a broad edging of double Arabis.
13. Vermilion Brilliant tulips with an edging of mealy leaved auriculas such as Celtic King.
14. Lines of wallflowers with higher tulips behind or among them.

The combinations are innumerable. It is only necessary to say by way of warning that the carpet plants should very often be planted earlier than it is necessary to plant the tulips. These can easily be put in with a small trowel or a blunt dibbler later on. Personally I do not like too many tulips in any bed which is carpeted with another plant. There should be the low growing mass of colour just relieved with dots here and there of taller growing tulips. When these are a central mass inside a band of something else, they may be put in much closer. Then the effect comes from a solid mass of colour. A novel idea, which I believe is very effective when it is carried out with discretion, is to put isolated single bulbs of large-flowered Cottage or Darwins in herbaceous borders. When May-flowering tulips are at their best there is often rather a paucity of hardy flowers, and these bits of brightness relieve the green and bridge over the awkward time. I have referred in another place to clumps. I would always have some in an herbaceous border; there are tall-growing tulips for the more backward positions and lower-growing ones for

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the front, and as to colour the choice is very wide. The delicate young green leaves of the other inhabitants set off the bright tulips to perfection.

With regard to a mixed bed of tulips, one desideratum is that the plants should not all be the same height. It is a comparatively small detail, but it is these little things that "just make the difference."

Quite recently a new race of branching tulips has been introduced by M. Bony, the best known one being Mons. S. Mottet, a long white flower which flushes with age. When these are to be had in several colours, they will become very popular for bedding or massing, as in my opinion it will be a distinct gain to get more flowers at different heights either all of the same shade from employing one variety, or of different shades if there are several. I never had the luck until this spring to see what a good lot of these branching tulips was like in a bed by themselves. I may say I was very much impressed. They are as easy to manage, and as hardy as any others. All they require is extra rich ground in which to grow.

CHAPTER XX

PROPAGATION AND NEW VARIETIES

ALL the different varieties of tulips may be increased by offsets, which in the majority of instances are produced in great quantities. There are, however, certain exceptions: for example, there are species such as *T. Greigii*, florist tulips such as Mabel, and certain garden varieties such as Ada (Albion), which give very few or none. Where no offsets are produced, the only thing to do is to sow seed if we wish to work up a stock. In the case of most of the natural species, the result is satisfactory, as I believe they generally

breed true to type, but in all other cases this is of no use, as the seedlings never resemble their parents. All that can be done then is to patiently wait for offsets.

New varieties originate either from seed or from "sports." Garden and florist tulips, even if they are self-fertilised, usually throw an infinite number of new varieties, demonstrating clearly the hybrid origin of all of them. If deliberate crosses are made, definite results may be aimed at, and, from what information I have been able to gather, the progeny will tend to show the characteristics that are sought for. Sporting does not refer to the extraordinary change from a self to a striped flower, which is the natural thing to expect in the case of all breeders or mother tulips (see page 18); but to the sudden change of colour or colours which take place in the tulip more perhaps than in any other flower, and which can possibly only be matched by the marvellous diversity which so many members of the fern tribe exhibit—for example, the common Hart's Tongue (*Scolopendrium vulgare*) or the Polypody (*Polypodium vulgare*). To take one or two examples—from the early tulip La Reine, there have come Hermann Schlegel, White Hawk, Rosy Hawk, and Flamingo; from White Pottbakker, both Stanley and Grace Darling; and from Joost van Vondel, the lovely white Lady Boreel (formerly called White Joost van Vondel). I have had examples of this sporting in my own garden; probably the most striking being a sport of Golden Crown, which has given me a glorious, almost "all red," tulip. These sports seem for the most part to be permanent, and their offsets to come true.

TREATMENT OF OFFSETS

These are best sorted into sizes, and the smallest should be planted first. If August is not too hot and dry I plant them then; but if it is, I wait until September, and not later.

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They should be put about two inches deep, not more. I

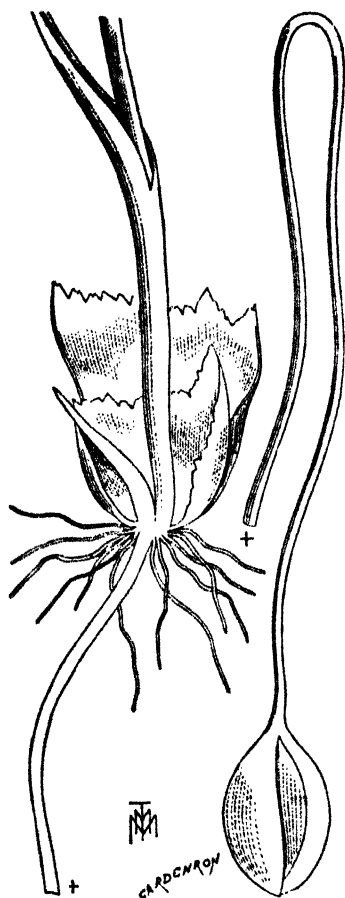


FIG. 3.—“Dropper” bulb; the new bulb is placed at the bottom of a tube or sheath prolonged downwards.

(From the *Gardeners' Chronicle*.)

cover the beds with an inch of peat-moss litter in November, and beyond seeing that this is secured (see page 83) so that it does not blow about, they get little or no attention until the following spring. They are then lifted in the usual manner, and thenceforward they follow the usual routine practised with the larger bulbs. It will be found that these small bulbs are very liable to produce “droppers”—that is, a bud develops in a peculiar manner, and, in place of making an ordinary little bulb at the side of the large one, a long tube is formed which descends downwards from 2 to 4 inches below the parent, and then at its extremity forms a small bulb. Droppers are easily known by their hard skin, and should be very carefully looked for when lifting is in progress. Certain tulips display this tendency more than others, *e.g.* *T. Kaufmanniana* and *Ellen Willmott*. Some form bulbils in the angle between the stem and the lower leaves, *e.g.* *Mrs.*

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Moon and La Tristesse. Both droppers and bulbils may be treated exactly like ordinary bulbs. The latter may be taken off when the leaves have died and the bulbs are being lifted.

SEED SAVING AND SOWING

To produce a good crop of seed, a sunny and dry early summer is necessary. In 1911 I had any quantity of seeds in my own garden, and in one or two beds which I did not lift in the autumn, I found it had sown itself, as parts were thick with tiny seedlings in the following May. To get the best out of the plants, seed-bearers should be planted in beds by themselves in rather richer soil than usual, and in an airy and sunny position. If a glass light can be placed over them just before the flowers open, and free circulation of air left at the ends and sides, it will be found very helpful, and in rainy and damp seasons probably mean the difference between a crop and no crop. Seed-bearers may also be grown in pots where a cold greenhouse is available. For this purpose use 7-inch or 8-inch pots, and put three bulbs in a pot. Make the soil rich and porous, and grow them the whole time without any heat and with abundance of air. All that is necessary is just to exclude frost.

The pod is ready to gather when the edges of the seeds show plainly through the outer covering, and when the top just begins to open. The seeds are best kept in the pods until they are wanted for sowing, and if the pods are cut with about a foot of stem they may be stood in vases like flowers.

Seed may be sown either in autumn or spring. As far as I can judge, better results are obtained from September or October sowings than from those made in February.

If sown in the open air, the seed should be put about an

inch deep, and it should be topdressed with leaf-mould or peat-moss; if in boxes or pans, the soil should be light and very well drained, and the seed just covered. It is best to keep the pans in cold frames. The seeds germinate in March and April, and for their first year their growth has a similar appearance to young onions. The solitary, slender, and cylindrical leaf dies down in June. The little bulbs should then be shaken out, stored in sand, and replanted in deep boxes or pans (6 to 8 inches) early in autumn again, keeping them in cold frames as before. The second season you get a bulb and a dropper. These must both be kept very carefully together when lifted, or else one of the two should be destroyed—the object of course being to avoid confusion in the new sorts. After this the little seedlings may be treated like offsets, and taken up each year until they flower. With regard to the actual operation of fertilising: the first thing is to pull off the anthers of the flower that is chosen as the seed parent before it opens, and at once cover the stigma with a little cotton wool. Pollinate as soon as it is found that the stigma is sticky. When it has “taken,” the surface will begin to turn purple in a few hours, and when this happens no further protection is necessary, but at first the cotton wool must be replaced.

As to what crosses to make, I fear I can give no advice. Mr. A. D. Hall says that, as far as the florist type is concerned, those who wish to breed good flowers which will be advances on the present varieties must be careful not to select blooms of a poor shape or with foul bases. They must also try to get as steady markers as possible. A great desideratum is a race that will yield flowers which come consistently good, and not such as only give one fine one in fifty. Yellow grounds are recessives to white, therefore yellow grounds are pure, and throw only yellows when mated together. Hence white ground crosses may throw yellows

PLATE VIII

EUTERPE

FRANS HALS



if both parents are impure whites. Yellow crossed with pure white gives white; yellow crossed with impure white gives half and half.

With regard to garden varieties and natural species, I cannot help feeling that there is a great unknown land before the careful systematic hybridiser, which so far has hardly been visited. Here and there work has been done in this direction, but I cannot hear of any results being as yet available for general information. For those who wish to embark upon an interesting and novel branch of gardening, I would suggest their taking up the cross fertilisation of these two types. *T. Greigii alba*, a probable natural hybrid between *T. Greigii* and *T. Kaufmanniana*; *T. elegans*, a possible hybrid between *T. acuminata* and *T. suaveolens*; and *T. retroflexa*, another suggested hybrid between *T. acuminata* and *T. Gesneriana*, give us glimpses of what explorers of the new, almost untrodden country of cross-fertilised tulips may find.

CHAPTER XXI

DISEASES

THERE are three fungous diseases to which the tulip is subject.

(First.)—*Fire*. This a very common ailment, and there are probably few gardens where traces of it may not be found in any year. Luckily it is not what may be called dangerous. Even in very bad attacks, when the foliage is completely destroyed, the bulbs themselves remain unaffected. All that happens is that they do not attain their full growth, as the leaves are prevented from elaborating the food. The decay is caused by a fungus named *Botrytis galanthina*. As a

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rule, it does not make its appearance until the leaves are well above the ground. With me it seldom is to be seen until about the time the buds are well developed; whether up to then the outer skin of the leaves and stem is harder, or whether it is that there are no spores blowing about ready to do the mischief,¹ I cannot say. I only know that it is shortly before and at the flowering season that I must keep the sharpest look-out for the small, greyish-looking spots and patches which I know are the beginning of the evil. Some of my men go round periodically with a knife and scissors, and cut out or cut off every bit that they can see. In a dry season this easily keeps it in check, for, to begin with, very little appears, and secondly, it does not spread quickly. But I know only too well what a difference two or three wet days make; the disease spreads like magic, and if draggly weather continues it is apt to become master, and, in beds where it is bad, entirely wither up the leaves. Hail, cold winds, and hot burning sun on the dewdrops or the rain-drops on the flowers or foliage, are the accessories before the sad fact of the presence of this irritating visitor is apparent. As a preventive I would suggest spraying the developing leaves once or twice with the Wye Bordeaux Mixture (copper sulphate, slacked lime, treacle and water), and the constant cutting out of all infected spots as soon as they appear. I think the author of the *Dutch Gardener*, 1703, (see page 4) rather overstepped the mark when he wrote, "The Tulip is subject unto a dangerous Canker which must be met in time with a curious Eye and Hand," and called it a "Mortal enemy." It is bad; but if we have a "curious eye and hand," and use the two in conjunction, I do not think we have anything to fear from this unwelcome fungus.

¹ Mr. Polman Mooy of Haarlem maintains that it is possible to eliminate "fire" by consistently destroying every bit of fungus for several years together.

(*Second.*)—A more serious disease is that caused by *Botrytis parasitica*. It attacks the young foliage, and also the bulbs. It is known by its producing little black round things that vary in size from a pin's head to a small pea. It also affects the dried or drying foliage and the seeds and seed pods. I have had it among bulbs boxed up for forcing, and I am inclined to think it was then due to the covering material, which was heather, and which had been lying in a close heap all the previous summer after having been used for covering the year before. For this reason I am very particular what material I put over the boxes and pots, and advocate if possible the use of darkened cold frames with plenty of air in preference to any other covering. Want of air and damp are certainly two contributory causes to the appearance of this pest. Practically, whenever these little black peas or pinheads are seen, it is necessary to burn everything that they are on, and, if it is in bulbs in the open beds, remove the soil all round the diseased ones, or, if they are in boxes or pots, put it where it will not be used again. I would on no account put away in boxes to dry bulbs with the green foliage attached to them. The heat and damp generated by their decay are very conducive to disease obtaining a foothold.

(*Third.*)—The worst disease by far is *Sclerotium tuliparum*. This fungus infests the soil, and is said to destroy in a short time whole patches of bulbs. I am very thankful to say I have had no experience of it whatever in my own garden, nor have I ever seen it anywhere else. I am told that the best thing to do to keep it away is never to plant tulips in beds where diseased begonias, irises, or tulips have been cultivated in previous years.

Danger from Living Things.—Rats, mice, slugs, and wireworms are all of them very fond of tulip bulbs. A constant watch, therefore, must be kept lest they begin their depredations without our being aware of it. I find virus (I use The

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Liverpool Virus) an excellent remedy for mice and rats when I apply it according to the directions received when purchasing. Green fly is very partial to the young leaves under glass. As prevention is better than cure, I advise fumigating from time to time with a nicotine insecticide. The leaves suffer very much in appearance if this simple precaution is neglected. Be careful not to plant in virgin loam unless it is certain there are no wire-worms in it. They are almost invariably to be found in freshly cut sod.

CHAPTER XXII

SELECTION OF VARIETIES

I AM not sure that I have not left the most difficult chapter until the last. In imagination it seemed the easiest thing in the world to jot down the best flowers for various purposes. Directly, however, that I took out paper and pencil, and began to make my lists, I realised how mistaken I had been. What to leave out is the trouble, especially so with the selections for "cutting" and for "out of doors." If ever the saying that there are as good fish in the sea as ever came out of it is true, it is of the tulips that might be included, but which are not. "My favourites," as I have headed two sections, have made it a little easier, but not much, so many appeal to me—some in the bright sunshine, some in the clearer but less glaring light before dusk, some for their historic associations, some for their delicate tracery and refinement, some for their barbaric splendour and gorgeous colouring, some for their beauty of form, some for the wonderful markings of their bases, and so on. No flower is more the creature of the passing hour than the tulip. It is its moods and its instant response to the uncertain play of light and shade that so

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fascinates its devotees, be they the exacting florists, or the more easily pleased "general public."

(A.)—For forcing and growing under glass for cutting—

First Earlies

Scarlet Duc van Thol, earliest of all.	Prince of Austria.
Fred Moore.	Rose Gris-de-lin.
La Reine.	Vermilion Brilliant.
Le Matelas.	Yellow Prince.
Mon Trésor.	White Hawk.

Later Blooming

Couleur Cardinal.	Murillo (double).
Couronne d'Or (double).	Salvator Rosa (semi-double).
Isabella (Cottage).	White Swan (Cottage).
Le Rêve.	

Later Still (mostly Darwins)

Antony Roozen.	Philippe de Comines.
Clio or Bronze Queen (Cottage).	Pride of Haarlem.
Donders.	Rev. H. Ewbank.
Euterpe.	Saes.
Golden Crown (Cottage).	Sieraad van Flora.
Jaune d'Oeuf (Cottage).	White Queen.
King Harold.	William Copeland.
Margaret.	William Pitt.
Mr. Farncombe Sanders.	Zanzibar.
Orange Beauty (Cottage).	Zulu.

(B.)—For pots—

Early Single

Brunhilde.	Grace Darling.
Cerise Gris-de-lin.	Jenny (my special favourite; very sweet).
Cottage Maid.	Keizerskroon.
Duchess of Parma.	

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La Remarquable.	Princess Hélène.
Le Matelas.	Queen of the Netherlands.
Mon Trésor.	Rose luisante.
Potter.	Stanley.
President Lincoln (Queen of Violets).	Van der Neer.
Prince de Ligny.	Vermilion Brilliant.
Prince of Austria (the best of all ; sweet).	White Joost van Vondel (Lady Boreel).

Early Double

Cochineal (semi-double).	Safrano.
Couronne d'Or.	Schoonoord (my great favourite).
Murillo.	Tournesol.
Premier Gladstone.	Vuurbaak.

Darwins

Ant. Roozen.	Ouida.
Baronne de la Tonnaye.	Painted Lady.
Bleu Aimable.	Pride of Haarlem.
City of Haarlem.	Professor Rauwenhof.
Donders.	Rev. H. Ewbank.
Erguste.	Sieraad van Flora.
Fontenelle.	Suzon.
Gudin.	The Bishop.
King Harold.	Velvet King.
Madame Bosboom Toussaint.	William Pitt.
Melicette.	Zanzibar.
Morales.	Zulu.

(C.)—For cutting, grown out of doors. My favourites.
(Those with an asterisk are Darwins.)

Ada (Albion) when fully grown.	Bouton d'Or.
It looks dingy when opening.	Clara Butt.*
Beauty of Bath.	Didieri.

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Didieri Alba.	Marie.*
Do Little.	Melicette.*
Elegans Alba.	Morales.*
Ellen Willmott.	Mrs. W. O. Wolseley.
Erguste.*	Orange Beauty.
Euterpe.*	Orange King.
Florizel.	Picotee.
Gertrude.	Pride of Inglescombe.
Gesneriana lutea pallida (Mrs. Keightley).	Retroflexa (very charming).
Godet Parfait (Cottage).	Royal Visit.
Goldmine.	Salomon.
Goudvink.	Solfatare.
Hammer Hales.	Sophrosyne.*
Isis.*	The Bishop.*
John Ruskin.	The Fawn.
La Joyeuse.	The President.
La Merveille.	Toison d'Or.
Leghorn Bonnet.	Walter T. Ware.
Louis XIV.	Yolande (Duchess of Westminster).*
Loveliness.*	

(D.)—For planting in the open in beds or clumps. “My favourites.” *Many of these are included under the previous heading. I have thought it best to repeat them here to make it easier for reference.*

Early Single

Couleur Cardinal.	Maes.
Dusart.	Prince de Ligny.
Fire Flame.	Prince of Austria.
Fred Moore.	Scarlet Mammoth (mid-season).
Hector.	

N.B.—Scarlet Mammoth and Le Rêve bloom between the early and late varieties.

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Cottage

Andrew Hunter.
Avis Kennicott.
Carnation.
Cassandra.
Clio (Bronze Queen).
Fairy Queen.
Feu Ardent.
Gesneriana lutea.
Gesneriana major.
Goldfinder.
Goudvink.
Grenadier.
Hammer Hales.
Illuminator.
Inglescombe Yellow.
John Ruskin.
La Merveille.
Le Rêve (mid-season).

Louis XIV.
Lucifer.
Marksman.
Mauriana.
Moonlight.
Mrs. Moon.
Mrs. W. O. Wolseley.
Orange King.
Pompadour.
Pride of Inglescombe.
Rose Beauty.
Salomon.
Scarlet Emperor.
Sir Harry.
Solfatare.
The President.
Walter T. Ware.
Zomerschoon.

Darwins

Ariadne.
Bleu Aimable.
City of Haarlem.
Crépuscule.
Edmee.
Euterpe.
Faust.
Frans Hals.
Haarlem.
Isis.
Jubilee.
La Tristesse.
Madame Bosboom Toussaint.
Marie.
Mauve Clair.

Morales.
Mr. Farncombe Sanders.
Mrs. Potter Palmer.
Pride of Haarlem.
Prince of the Netherlands.
Professor Rauwenhof.
Suzon.
Tara.
The Bishop.
Victoire d'Oliviera.
Viking.
William Pitt.
Zanzibar.
Zulu.

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Species

<i>T. Batalinii.</i>	<i>T. linifolia.</i>
<i>T. dasystemon.</i>	<i>T. persica.</i>
<i>T. Eichleri.</i>	<i>T. præstans</i> (Tubergen).
<i>T. Fosteriana.</i>	<i>T. strangulata primulina.</i>
<i>T. Kaufmanniana.</i>	<i>T. sylvestris.</i>

(E.)—For grass.

As I have said elsewhere, few tulips succeed well in grass. *T. sylvestris* seems to be the best of all. I know a Devonshire garden where it is quite established, but I am told it does not often flower.

T. elegans.

|

T. sylvestris.

(F.)—For rockeries.

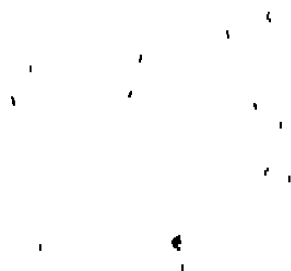
All the Species, and especially the dwarf ones.

T. elegans.

Pompadour.

Gloria Mundi (dwarf red and yellow striped) Rose Dorée (curious blend of orange and pink).

Mrs. W. O. Wolseley.



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